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UNION LABOR AND CONGRESS.

Is it not time for manufacturers to go into politics? Should not a forceful and concerted action be made by all business men if they wish to protect their interests from forces that even now are at their factory doors? Cotton manufacturers, being large employers of labor should, it seems to us, be especially interested. The Owen bill, the Palmer bill, the Clayton bill, in fact it is very hard to find a bill of recent introduction in Congress that does not contain one or more sections inimical to manufacturing interests. Even the appropriation bills are forced to carry "riders."

John V. Farwell, of Chicago, expresses the conservative business sentiment of the country when, in a discussion of the new so-called anti-trust laws, he said:

"I believe general business needs a rest, and that the politicians who do not think so will be forced to think so before very long. It seems to me a shame that these facts should not be realized, and the country be given an opportunity to enjoy the prosperity which would come to it very soon if let alone. This does not mean that 'stand-patism' is the best policy—far from it, but that a patient cannot be dosed all the time and get strong.

"Nor do I wish to condone dishonest practices wherever found, and because I believe 'guilt is personal' I would spare no time nor money nor effort to prosecute individuals guilty of such practices up to the very limit. The people and their representatives, however, should not get the impression that all business is rotten, and attempt to legislate on that basis. If they do, as I stated, they are going to retard a return of prosperity and the giving of work to the thousands who are out of employment.

"It may be wondered, why many business men have not taken more trouble to oppose this legislation. Is it not because they believe it was 'on the program' and opposition would be only a waste of time and energy and also probably misunderstood?"

Many thousands of business men have taken this view when considering a possible opposition, as the present party policy of following the caucus plan at once renders all debate a farce and the result a fore-ordained conclusion. The one frank answer, the single excuse to be made for this method of procedure, regardless of the party affiliations of the man questioned, would be—*politics.*

This is a rather indefinite and unsatisfying reply for a man representing vast business interests which are in danger or suffering from the effects of detrimental legislation. His one effective remedy lies in expressing his fears and his desires to his congressman. Then, if unable to secure satisfactory representation, change the *politics* of his representative.

It is, however, a reasonable supposition, in spite of some evidence to the contrary, that most congressmen are well balanced personages who mean to be fair to all the people they represent. They have to work at a disadvantage, inasmuch as certain labor interests are constantly reminding

them, through the medium of agents or otherwise, of the legislative desires of union labor. As James A. Emery very aptly stated in his recent address to the Georgia Manufacturers, these labor agents exemplify the well known trade mark of cascarets, "they work while you sleep."

Many state legislatures, spurred on by these same labor interests, have enacted such drastic laws as to place manufacturers at a great disadvantage, so much so, in fact, that William M. Wood, president of the American Woolen Company, in a recent address before tthe Massachusetts Real Estate Exchange, said: "If I could put wheels under our mills and run them out of the state of Massachusetts, I would certainly do so, because of many of the conditions under which industry now has to be carried on in this Commonwealth. I am speaking as one who has made a great effort to bring to the state of Massachusetts, capital for the development of its industries and the employment of its labor.'

These extreme industrial conditions in Massachusetts will not only be duplicated throughout the entire country by the passage of the radical legislation now being considered in Congress, but in many respects the results will be enhanced and intensified.

Union labor, however, is not yet entirely satisfied. They are now asking that a privileged class be created composed of that faction of the great mass of workers, who are associated together and organized in unions, and that this privileged class shall receive absolute exemption from the operation of the very laws they have been advocating and urging for the control of others.

It is indeed vitally necessary for the cotton manufacturer to step aside at this time from his routine duties as a manufacturer and study politics. Each one should express his personal opinion to the Congressmen from his district on the various laws, and sections of laws, affecting his business and if fair and equal treatment cannot be obtained because of the *politics* of his representatives, then *change their politics.*

DAVID DUDLEY FELTON.

David Dudley Felton, who has been prominently identified with the brush manufacturing industry of this country for many years through his connection with the firms of S. A. Felton & Sons Company, of Manchester, N. H., and the D. D. Felton Brush Company, of Atlanta, Ga., died at his home in Manchester, N. H., on May 5th last. For more than a year past Mr. Felton has been in failing health, and the end was not unexpected.

Mr. Felton was born at Eden Prairie, Minn., December 27, 1861. Shortly after his birth the family returned to their old home at Marlboro, Mass., where they remained until 1869, when they removed to Manchester, N. H. Some time in the 80's his father, S. A. Felton, took him into the business of brush making, and the firm name was changed to S. A. Felton & Son, and he then became an active spirit in the management and development of the business. Later the firm was incorporated under the name of the S. A. Felton & Son Company, under which name the business is conducted today.

Since the death of his father in 1907 the entire supervision and management of the business, which has recently been increased by a large addition, has devolved upon Mr. Felton. In addition to this, about two years ago he organized the D. D. Felton Brush Company, of Atlanta, Ga., and James B. Fitch, who was for years connected with the S. A. Felton & Son Company, was placed in charge of the southern branch.

In October, 1888, Mr. Felton was married to Mary Fiderica Briggs. He leaves, besides his wife, his son, James Briggs Felton. Mr. Felton was a man who will be missed in the business and social life of Manchester. He was one of the most popular members of the Derryfield Club, and his death removes another of the old guard who have been connected with the club for years. In his youth he was one of the active members of the Manchester Cadets, and always took a great interest in all sporting events. He was director of the Manchester National Bank and the People's Gas Light Company, and, besides being a member of the Derryfield Club, was also a member of the Intervale Country Club. Patriotic, loyal, blunt and plain spoken, with a tender heart, a jovial and happy disposition, enthusiastic in business as well as in social affairs, David Dudley Felton closes his life leaving behind him a host of friends and acquaintances who will long remember him.

ANNOUNCEMENT.

On May 1st, J. T. Rose, formerly vice-president and manager of sales of the Atlanta Steel Company, identified himself with the W. R. C. Smith Publishing Company, becoming treasurer of that firm.

Mr. Rose came to Atlanta in 1901, having previously been manager of sales of the American Bridge Company of New York. He has been very successful in building up the business of the Atlanta Steel Company and it is now one of the largest in the South. He began in the steel business in Toledo, Ohio, being transferred to Pittsburg and New York before coming South. He is a graduate of the Ohio Northern University, a member of The Engineering Association of the South and President of the Atlanta Builders Exchange.

His extensive experience and wide acquaintance among the industrial and manufacturing interests throughout the South will therefore tend to strengthen the already vigorous personnel of the W. R. C. Smith Publishing Company, publishers of COTTON, SOUTHERN ENGINEER, SOUTHERN MACHINERY, and ELECTRICAL ENGINEERING.

SOUTHERN TEXTILE ASSOCIATION.

The following is the program of the annual convention of the Southern Textile Association to be held at the Isle of Palms, S. C., on June 12th and 13th:

"Address of Welcome," by Mayor Jno. P. Grace of Charleston, S. C.

"Response to the Address of Welcome," by I. B. Covington, Mt. Holly, N. C.

"Annual Address of the President," by T. B. Wallace, Greenville, S. C.

"Aims and Purpose of Southern Textile Association," by J. M. Davis, Newberry, S. C.

"Manufacturing Goods for Africa," by R. M. Odell.

"Cotton Manufacturing Methods in Japan," by W. A. Graham Clark.

"Cotton Combing," by P. A. Gwaltney, Fayetteville, N. C.

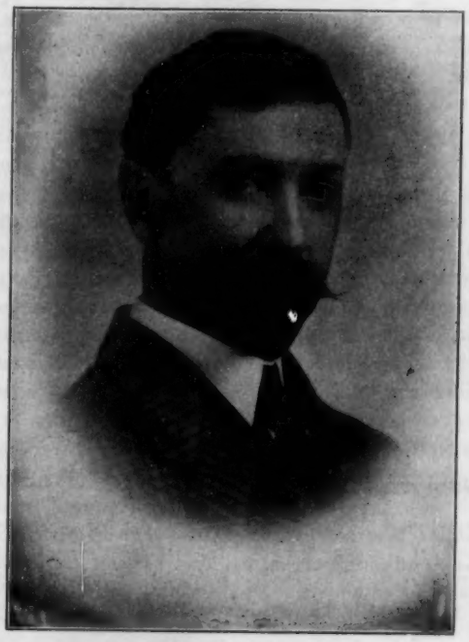
"Management of a Fancy Weave Room," by L. O. Bunton, Chester, S. C.

LEGISLATION AND BUSINESS

An Address Delivered Before the Cotton Manufacturers' Association of Georgia at its Fourteenth Annual Convention

BY HON. JAMES A. EMERY, WASHINGTON, D. C., CHIEF COUNSEL FOR THE NATIONAL ASSOCIATION OF MANUFACTURERS.

It is very delightful to renew my acquaintance with your members, especially to revive it in this marvelous city that, fertilized by its own ashes, has, in the half century since the war, assumed a position that makes it a worthy rival in social, industrial and commercial development of any city of its size in the world. The Georgian should be justly proud that out of unequalled desolation you have won unparalleled prosperity. This generation finds here a noble building in every place where Sherman set a gun. A short time ago I heard in Washington a greeting between two citizens of this city; one had left it shortly before the other. "When did you leave Atlanta?" said the later comer. "Monday," replied the earlier arrival. "I left Wednesday," said the other, "and you ought to see how that town has grown since you left."



HON. JAMES A. EMERY.

It was well worth coming this distance to hear the wit, wisdom and optimism with which the chairman of your Tariff Committee discusses the latest form of our impost. And I was especially struck with the spirit permeating the report of your Legislative Committee, revealing as it did not only the determined effort to analyze and present the relationship of government to business, with clearness and sympathy, but a determination to lead in every sound and necessary reform, to be generous and sympathetic in every proposal of policy governing your relationship with your employes, but to be as firm and unyielding as a rock in your defense of the fundamental principles of your constitutional rights and of those remedies by which they can alone be efficiently protected.

It is difficult to exaggerate the critical and serious relationship between the conduct of business and the legislation which proposes to regulate it, and the relationships between those engaged in it, both as supervisors and workers in production and distribution. As society becomes more complex, more frequent interference by the state is as inevitable as it is necessary, a condition which all the more emphatically demands that legislation shall not only be sound in principle and policy, but that its terms shall be clear and certain. So intimate is the relationship between the rules of the game and those who play under them that you have again and again, during the recent interpretation of our great central statute on combination, observed industry contract and expand with the decisions of the Supreme Court, as the quicksilver of the thermometer leaps and falls with the temperature. Now, the attention of the country is riveted upon still further proposals for the regulation of business, and, the delicacy of the regulations between its conduct and these proposals for regulation is demonstrated by the obvious fact that no other single factor is awaited with so much concern. Indeed, the business world, like the executive, is sitting in "watchful waiting."

For twenty-four years the Sherman Act has received interpretation. There have been many periods of doubt, and doubt means delay and inaction. It is the last condition of mind in which progress is possible, and I believe we are therefore concerned at the present moment in the form of pending proposals not less than in their substance. We must doubt the wisdom of adding new standards to those of received meaning, believing with our friend, Mr. Dooley, that we must be able to distinguish "between business men and burglars without the aid of thumb marks."

But, sirs, while so-called trust legislation is so important a part of what may be termed legislation affecting business, there are other proposals expressing a very serious tendency of our times that deserve your serious attention, to which I especially desire to direct it.

We witness on every hand both in Federal and State legislation, an increasing tendency to legislate with respect to what may be termed the human relations, and especially that most important and intimate relation between employer and employe termed the "labor contract." The substitution of the factory system for that of individual production, of the corporation for individual management, the evolution of the simple tools of an earlier period into the highly complicated and dangerous powers and machinery constitutiting the instrumentalities of present day production, naturally compels recognition in the law, of changing circumstances in employment and the relations of employer and employe.

It is said that production is "socialized," meaning that its units, whether employer or employe, are social and not

individual units. While this is true in an ever-increasing extent, it is equally true that the initiative, the supervision, the administration, the inventive genius, that applies new forces and develops more marvleous mechanism through which to utilize them, is still as individual as the skill and individual service that sustains all these operations under directing control. here is even a greater necessity for the protection of individual liberty and the preservation of individual opportunity now, than in any other period of our history, for the development of a material civilization like ours demands as never before individual skill to administer it, individual ability to direct it, and individual example to encourage that each man, whatever his class, condition or station, shall have the best opportunity to rise and reward himself in accordance with his character, capacity and skill, and being made secure in obtaining and preserving his reward, be inspired to run that career that will contribute most to the benefit of society.

There is, then, an obvious lurking danger in legislating in purely social terms, in subordinating the individual too much to society until, in regarding him too constantly as one whom society must support, instead of being himself the support of society, we equalize individuals instead of preserving their equality of opportunity and action. We may thus give them a status instead of preserving an opportunity to arise out of the class in which they are born to every other to which they may aspire, and toward which the highways of travel must be kept open or our government ceases to reflect the great original purpose of our institutions, to secure to each the opportunity to make the most of that which is in him, and thus confer the greatest social benefit by spurring all on to that goal of success which makes each render the best service to society.

I do not refer now to legislation which undertakes to preserve the health, safety and well being of the community or protect the worker against abuse or misuse of authority, but rather to that legislation which undertakes in response to powerful political influences to inflict the economic theories and purposes of groups of individuals upon a community, or, under the plausible pretense of protecting individuals, curtail the liberties and opportunities of vast numbers of citizens until they comport with the judgment of what an influential number believe is best for their own good, or which makes states or counties laboratories for social experiment, where highly emotional although perhaps very well intentioned people undertake to establish rules of conduct for what they believe to be the betterment of the race.

I should be the last to deny the propriety and validity of just social legislation. So, in calling to your attention the tendencies spread before us today, I shall endeavor to point out in what respect some of it, and certain very plain and determined tendencies, seem to me to offend against not less the spirit than the letter of our law, and to introduce into the ideals of our people notions that are foreign to our institutions.

Employer and employe are but the citizen at work. Now we have rejoiced that our institutions preserve, as in no other country, in the daily walk of our people the most remarkable opportunities for self-advancement. They provide, by constant examples of great and honest success, in every calling, continuous inspiration to the citizen and the alien in whatever condition he may be born, and I think we still wish to believe, as a practical everyday fact, that the American boy still has within his attainment any goal that the gift of God, the development of his own character and the exercise of his own energy puts within his grasp.

Now, as a type of highly important social legislation, let us observe the regulation of the employment of children, observing the successful strides we have made and the latent dangers of the mistaken effort to secure a uniformity of rule by the misuse of a power not intended for this purpose.

Last year thirty-one states enacted legislation relating to the employment of children. Within three years forty have excluded them from night work. More than half our commonwealths forbid the employment of illiterate children without provision for educational opportunity during the term of their work. Eight of your southern states have aimed a straight shot at a serious abuse by absolutely forbidding the support of able-bodied parents by dependent children. Throughout our country, at this time, a strong movement is gathering greater headway and constantly more intelligent support for the purpose of fitting the child for the practical business of life by vocational training tending to develop his latent capacities and point his natural tendencies toward the selection of his life-work. All of this legislation recognizes the value of the child to society, undertakes to guide his youth, protect him in his growth and environment, and without depriving him of the necessary opportunity to contribute to the support of his parents as he reaches his stronger years, prevents his exploitation by unnatural parents or indecent employers. I think one of the errors of those who have undertaken to greatly increase the age at which minors may be permitted to work is to fail to recognize that there is something worse than permitting, especially, healthy male children to obtain safe employment during the formative period, and that is to subject them to the destroying temptations of idleness. Moreover, the limitations to be placed upon child labor are very largely local problems in which the judgment of communities, familiar with the circumstances of their own life, are better than that of remoter sections. The very principle of local self-government rests upon the belief that localities understand their domestic questions best.

The proposal is now being made, and will be urgently pressed, with plausible arguments that will excite very natural sympathies, that the Federal Government ought to regulate child labor under the guise of regulating commerce. That is, Congress may forbid the introduction of any commodity into commerce, between the states, into which the labor of children below a certain age or working more than a certain length of time shall in any way enter.

In the first place, this is an abuse of a highly important power; the power to regulate commerce between the states is the power to fix rules of intercourse—it is not the power to fix the conditions of production in the various states. Those are matters of domestic concern, and to regulate production under the guise of regulating commerce or intercourse between the states, would deprive every commonwealth of its native police power and make the Federal Government the master of its purely domestic concerns.

Furthermore, the proposal is founded upon an improper conception of policy. Frederick Stimson, Professor of Comparative Legislation at Harvard, and for many years Secretary of the American Society for Uniform Legislation,

pointed out in his very able work on "Popular Law Making" that there were two questions upon which the Commissioners on Uniform Legislation in various states were never able to agree, the discussion of which merely provoked bitter feeling; and that was the uniform regulation of hours of labor and of marriage and divorce. These differences were basic and arose out of differences characteristic of a country as extensive as ours, physical variations of climate, occupation, life and labor, and basic opinions fathered by social tradition, custom and viewpoint.

Furthermore, it must be obvious that uniform legislation on these subjects, not being based upon a uniformity of conditions, would work the most serious forms of injustice in various parts of the country, which, would be placed by the differing circumstances of life and industry at serious and dangerous disadvantages with other parts of the country. Such regulations, while being nominally uniform, would actually be anything but uniform in their operation. There is something worse than permitting the employment of children under rational supervision and that is to deprive them of the opportunity to contribute to their own livelihood, or that of their family, when that is economically necessary. Such a rule as is here proposed would place upon some communities a very great burden in comparison with others. It would put upon terms of equal competition the nascent industries of new sections just struggling into being, with the highly specialized, developed industries, long established and in the midst of highly developed facilities for transportation, and in the possession of sufficient capital. Communities, like individuals, pass through periods of struggle and hardship, to arrive at successful self-support and the possession of industry and trade that assures a competence. So I cannot see that the true friend of the child can find in such proposals either a sound policy or a sound principle.

Another subject of equal interest is the regulation of the labor of women. Between 1908 and 1913, some thirty-six states have limited their labor in various occupations, or during certain hours of the day.

From 1893 to 1910, our state courts, particularly, appeared to entertain serious doubts as to whether the legislature could limit the labor contract of an adult woman in general employment because of her sex, but the Supreme Court of the United States, in deciding the celebrated case of Muller vs. Oregon, in 1910, involving the limitation of hours of labor for adult women in laundries, held that because of the structure and function of woman, she could be the subject of separate and distinct classification in legislation, and thus differentiating her labor contract from that of man, the court has substantially made her a ward of the state, like the child, however disconcerting this may be to leaders of the feminist movement.

Pursuing the principles of this decision, many states have forbidden or limited night work for women, the number of hours which she may work during the calendar day in particular industries, and have entirely forbidden her employment in occupations thought to threaten her morals, and through her those of the community. For it is to be remembered that in all legislation of this character, support by the courts does not rest directly upon the effect which given employments have upon the individuals engaged in them, but upon the public health, welfare and safety.

The freedom of an adult man to work for whom he pleases, is an axiomatic principle of personal liberty among men of our blood. This principle is, of course, subject to the condition that the state may regulate the hours of labor of those who work for it, for in that regard it is at once a sovereign and a municipal corporation, with the same right to offer a contract of labor that any corporation would have. Furthermore, the state may, of course, limit the contract of labor where the public health or safety is involved. Thus, the Supreme Court has upheld the right of a state to regulate the hours of labor in mines and refused to recognize such a regulation for bakeries. Where the state is itself an employer, the Federal Government, through Congress, requires an eight hour day on its public works, where it employs directly or where it has its work done through a contractor or agent who stands in its shoes. Twenty-six states make the same provision with regard to work on the public works, and several states, as well as the Congress, have undertaken to require, either under fine, imprisonment or forfeiture, that commodities to be used by the state must be manufactured by laborers or mechanics, none of whom are employed more than eight hours on the subject matter of the contract. The power of the state to exact such a contract has been questioned by the courts of Ohio and New York particularly, the latter state having amended its constitution for the specific purpose of overcoming the doubts of its courts as to its power. While it may be true that the state when acting as an employer can require such conditions through contract, it is certain that it cannot enforce such requirements by making every violation a penal offence by the employer or the workman. Neither Congress nor any state has undertaken to penalize the laborer or mechanic for selling more than a certain amount of his labor. It has thus far always undertaken to penalize the employer or his agent, and I think there can be no doubt that the 5th and 14th amendments of the Federal constitution forbid either Congress or the state to make it a penal offence for an adult man to sell more than a fixed amount of his labor, or for another to buy it, in industries that are neither specially hazardous nor unhealthful.

In the business of transportation, the hours of labor of railroad employees are regulated on the very sound belief that long continued hours of employment threaten the safety of the traveling public by the strain which they place upon the railroad operatives. But this is, of course, a far other and different principle from that which undertakes to arbitrarily fix the amount of labor which an adult man may dispose of and another man buy. The State of Mississippi, by a statute enacted in 1912, makes a test of this principle now possible. In the State of California, at the approaching election in November, an opportunity will be given its citizens to vote upon an initiative bill making it a penal offence for any employer, by himself or an agent, to require or permit another to work more than eight hours in any calendar day. This proposal would apply to every industry and occupation. It presents the most extreme form of arbitrary interference with the cardinal principle of personal liberty. It makes no difference that instead of penalizing the person who works, it penalizes the person who employs him. The effect is the same. If no one may employ, no one may work. If the state may forbid the sale of one's labor to another, it may equally forbid it for one's own use, and it is surely as much a restraint on one's liberty to compel involuntary idleness as involuntary servitude. If an adult man may not regulate the sale of his own labor in ordinary employments, he is no longer free.

In the middle of the 14th century, England enacted the famous Statute of Laborers, which, supplemented by several amendments, had by 1360 both compelled men to accept

employment and fixed their wage. While the law remained on the books and was, indeed, renewed in a way by the Statute of Apprentices during the reign of Elizabeth, it was difficult and, indeed, impracticable of enforcement. In the civil law countries of Europe the effort to fix wages by law ceased with the French Revolution, and the dawn of free contract for the laborer was celebrated by the bells of Notre Dame. But these persisting efforts left in their train a lurking precedent for the fixing of wages by the state. These earlier exclusive efforts were in the obvious interest of the employer, but the same bad principle is now relied upon to fix a minimum wage in the alleged interest of the employee. In 1912, Massachusetts passed the first minimum wage law applying the principle in certain industries to women and minors. The measure was recommended by a commission of inquiry and was enforced through a board which examined the conditions of a particular industry and fixed a minimum wage. The law provided no other penalty than the publication of the names of employers who refused to pay the minimum wage prescribed by the board, in the papers of the locality in which they operated. In 1913, eight other states, (Colorado, California, Minnesota, Nebraska, Oregon, Utah, Washington and Wisconsin) followed the example of Massachusetts, limiting the application of the minimum wage principle in each instance to women and minors.

Two states have undertaken to reinforce this principle by making it a penal offence for an employer to deduct any sum from the wages of the employee for damages done to material through negligence or lack of skill of the employee.

The principle of this legislation is social. It is predicated upon the theory that each person should be paid what he needs and not what he earns, and that the irreducible minimum fixed by the state may not be lessened even by the workman's incapacity or carelessness. The inevitable result of the fixing of the wage by law is to create precedent for the most dangerous interference with the labor contract. Economically, the employer's natural tendency would be to exercise the utmost caution in the selection of employees, especially in periods of depression. The weaker or less capable, whom it becomes economically impossible to employ, will be crushed by the very principle falsely presumed to alleviate their condition. The aged, the infirm, the weak and the crippled, would be the first to feel the weight of such a principle, for the arbitrary mean establishes a level below which employment becomes impossible, and if wage may not be tempered to misfortune, misfortune becomes want and dependency. If, moreover, we establish the principle that there must be no penalty for lack of skill or care, that each must not pay for the mistakes he may rectify, not only is an arbitrary tax laid upon industry but throughout the gamut of service, from the humblest worker to the highest professional and public service, you establish the greatest possible inducement to discourage efficiency and lessen that inspiration that seeks opportunity for advancement and reward for individual development, which has been the spur of American progress from the earliest moments of our national life.

[Note. The length of this address prevented its publication entire in this issue, while its great value to cotton manufacturers precluded its condensation. The balance will be published in July, after which the entire address will be distributed in pamphlet form by the Cotton Manufacturers' Association of Georgia.—Editor.]

O. S. PORTER.

By the death of O. S. Porter at Porterdale, Ga., agent of the Porterdale plant of the Bibb Manufacturing Company, the South loses another of its pioneer cotton manufacturers. He was 79 years of age, and had achieved a reputation not only as one of the South's successful mill men, but he was widely known throughout the country.

Mr. Porter first entered the cotton mill industry in 1869, when he bought the Ada Shoals Factory from Enoch Stedman, who had failed with the enterprise. In partnership in this venture with Mr. Porter was a Mr. Spence. The latter died shortly after, however, and Mr. Porter purchased the entire interest of the mill. This plant was located three miles from Covington, Ga., and at that time it consumed two bales of cotton daily. The entire product was hauled three miles to the railroad on one ox team. From that small beginning Mr. Porter lived to see the mill grow into one which consumed forty bales of cotton a day, and has seen a railroad, operating three trains daily, built to the town. Under the name of O. S. Porter, the mill built up a nation-wide reputation for "seine and sail twine." In 1889 this mill was incorporated as the Porterdale Mills, with Major J. F. Hanson as president. Among the other incorporators besides Mr. Porter were H. M. Cone, president of the Central of Georgia Railroad, and J. B. Duckworth, of Liverpool. A new mill was built at this time by the company.

Ten years later, in 1899, the Porterdale Mills were incorporated and the name changed to the Bibb Manufacturing Company, and another new mill was built at Porterdale. The present plant has 25,000 spindles. In 1900, in conjunction with T. C. Swann, Mr. Porter organized and built the Covington Mills, which today operates 26,000 spindles. The Bibb Manufacturing Company, which has a capital of $1,750,000, and which operates four mills with a total of about 86,000 spindles, is one of the best known groups of southern mills, and it was mainly through the efforts of O. S. Porter that these mills have had such a successful career.

Another interesting phase of Mr. Porter's work is shown in connection with the establishment of the Georgia School of Technology. When this institution was founded in 1897 he was appointed, on account of his long technical training and knowledge, as a member of a committee of three to aid in the establishment of the school. He devoted a great deal of his time to this work until the college was started, and no other man, with the exception of President Hopkins, did more to place it on a firm foundation.

Mr. Porter is survived by three sons, J. H. Porter, vice-president of the Bibb Manufacturing Company; John A. Porter, general superintendent of the mills, and O. W. Porter, who is connected with the Porterdale plant.

Japanese cotton mills employed, at the end of 1913, 2,414,544 spindles, which turned out about 130,000 bales of yarn a month. Of this output, about 40,000 bales are for home consumption, while the rest is exported. If the present plans of the mill owners are carried out, about 200,000 more spindles will be installed this year, which will increase the output to about 150,000 bales per month.

American Cotton Manufacturers' Association.

The eighteenth annual convention of the American Cotton Manufacturers' Association was from every standpoint a complete and unqualified success. The attendance was large, and the interest manifested by the members in the papers read and the discussions provoked was a feature seldom seen, but much sought after in association conventions of this character. Another feature which no doubt contributed to the popularity of the convention this year was the change of dates which allowed the members to attend the convention in New York and then proceed to Boston to the convention of the National Cotton Manufacturers' Association and the Fourth National Textile Exhibition. Nearly everyone present did this, and special arrangements were made with the New Haven Railroad for Pullman equipment sufficient to handle the increased traffic on the night of the second day of the convention.

Headquarters for the convention were at the Waldorf-Astoria, and during the morning hours of the first day the lobby and corridors were crowded with southern mill men discussing trade conditions and prospects. Shortly after 2 o'clock President Stuart W. Cramer called the first session to order and introduced the Hon. George McAneny, president of the Board of Aldermen of the city of New York, who delivered the address of welcome. President T. H. Rennie, of the Pell City (Ala.) Cotton Mills, responded for the association in his usual happy style. President Stuart W. Cramer, of the association, then read his annual address, extracts from which follow:

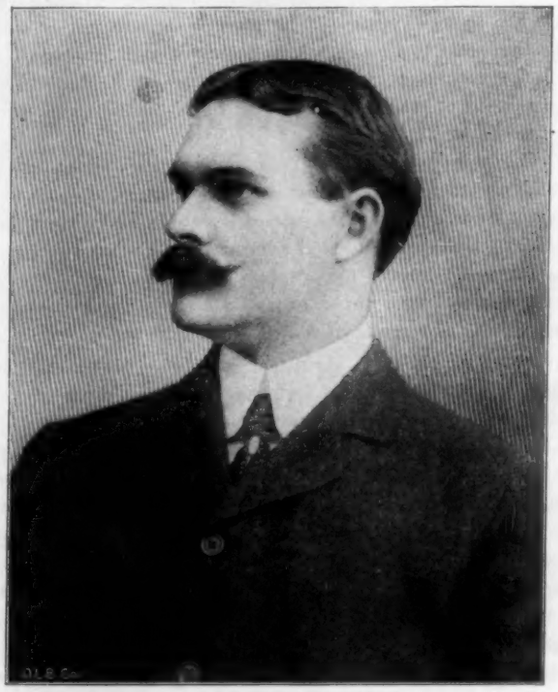
PRESIDENT'S ADDRESS.

Those engaged in every successful industry in every country, and, indeed, in every civilization, sooner or later have felt and yielded to the need of united effort. The whole world, today more than ever, is studying this inevitable evolution of commerce and industry. Nations approach the problem from different viewpoints; some encourage cooperation even to the extent of adding to its paternalism; all recognize and accept it in one form or another, for it is the will of the people. Germany has developed an elaborate educational system for teaching the true relation and value of individual cooperation in economics; has fostered it and aided by state cooperation until she is the most feared rival in foreign commerce. Japan is equally awake, and only less advanced because of lack of means.

Without consuming your time by sketching more than the barest outline of this thought, I wish to emphasize to you that while this industry is still free from consolidations approaching monopolies, and even of healthful cooperative organization beyond the advisory stage, that both economic and political developments have brought us to a point where steps must be taken towards more actual and real cooperation. With the mistakes of others clearly before us, and with careful and prudent counsel, we can so proceed as not only to maintain, but to exceed the splendid record of our past, and all within both the letter and spirit of the law. By following sound principles and effecting legitimate economies, each can conserve his own business and add to the prosperity of all others concerned—the producer of the raw material, the manufacturer, the merchant and the consumer. Economies must be effected in buying and handling raw materials, in processes of manufacture, and in the distribution of the product; lost motion and waste at every step must be reduced to a minimum.

Periods such as we have been passing through are hard and wearing, but the process is a natural one. It is a well-known principle of biology that "A living thing is distinguished from a dead thing by the multiplicity of the changes at any moment taking place in it." It is certainly reassuring that we must be very much alive at this time, if the changes in the conditions of our business during the past few years indicate anything; we seem to have had everything except increases in prices for our product.

In taking stock of the situation and considering where to begin, it so happens that the natural beginning of addressing ourselves to the problem of raw materials is the



RETIRING PRESIDENT STUART W. CRAMER.

one the successful solution of which will result not only in much direct gain, but probably also will constitute our greatest step toward economic independence.

Many manufacturers have given much thought and study to this question, and have foreseen and followed to a considerable extent the general form and direction of a successful answer, but the shadow of economic dependence has always obscured the path of definite and complete accomplishment. And so I have taken the liberty of departing from our custom of presenting for your attention a variety of papers largely technical, and beg to direct your thoughts during this convention exclusively to the more fundamental problems affecting the cotton manufacturing industry; and particularly do I ask your consideration of the subject of reforms in the buying, handling and carrying of cotton.

A discussion of that question naturally deals, first, with the rules and conditions under which cotton is bought and sold; and, second, with financing both the commodity and

the mercantile transaction. As will be shown by speakers who will address you, and by the report of your committee on cotton exchanges, movements are already well under way indicating a great improvement in, if not altogether a completely satisfactory adjustment of, conditions governing the first phase of the question—viz: the rules for buying and selling cotton.

There will also be submitted a plan that seems perfectly feasible for successfully disposing of the other and equally difficult matter of financing cotton transactions. This is more or less familiar to most of you as the Duke warehouse plan.

In view of the fact that the manufacture of cotton is an industry more than one hundred years old; that it is a very large one, spread over the entire civilized world; that the evolution of its technical processes has been the achievement of very many trained minds, both practically and scientifically educated, it appears extremely unlikely that radical changes or improvements in processes of manufacture are to be expected. The greatest opportunities along this line seem to lie in acquiring greater skill in the use of inferior cottons to produce a given result, in diminishing the amount of waste made, and in the utilization and working up of waste.

The standardization of sales notes, the adoption of standards of moisture or regain, the correction of some well-known trade abuses in the sale of dyestuffs and certain supplies, an organized and well administered bureau for guarding against customs undervaluations of imports, are all matters of extreme importance and are making satisfactory progress in the hands of standing committees.

Although the new tariff act has been passed and has been in actual operation for some time, the work of your Tariff and Legislative Committee is by no means ended, for it is naturally to be expected that there are uneven places in the measure that will require smoothing out, the pointing out of which will undoubtedly be left to manufacturers. It is by no means believed that the amount of importations forms a conclusive method of judging the effect of the new tariff bill upon the cotton industry. Up to the present time the effect has been largely one of the pressure of threatened importations, domestic manufacturers meeting prices and holding the business at figures that are profitless in many instances. As was frequently prophesied during the tariff hearings and at the time the bill was under consideration, in few if any of the cases where the already small profits to the manufacturers have been squeezed out has the ultimate consumer been the gainer; such reductions have been absorbed in the cost of distribution. As a whole, the manufacturers of the country have loyally supported the administration in the trial of its new tariff measure, in the hope that an analysis of its workings will lead to corrective legislation, where required, to the benefit of the producer and still without detriment to the consumer.

Further study of foreign markets and more cooperative and organized effort in that direction seems to be the solution of the export problem. The greatest successes yet achieved in American exportations appear to have been in the case of patented specialties, the products of highly organized and comparatively new industries, and particularly of industries with large corporations having powerful financial resources enabling them to maintain foreign offices and warehouses and to extend the necessary lines of credit. It is hoped that the new currency and banking act will not only provide elasticity enough to prevent money panics, but that its feature of foreign branch banks will be of substantial help in developing our export business.

It is interesting to note the increase in the Japanese business; and here it is also in order to call attention to the large increase of the spindleage in China. The editor of the *Textile Mercury* (Eng.) estimates that by 1916 Shanghai and vicinity may have one million spindles. The significance of the rapid development of the industry in China and Japan is the effect it will have upon our export business, and bearing upon that same question is the increased consumption of Chinese cotton by both Chinese and Japanese mills and the corresponding decrease in the consumption of American cotton. It was, indeed, startling news that appeared in recent press dispatches to the effect that China had so largely increased her cotton production as to now occupy third place in the production of cotton in the world; it was pointed out that lands formerly used for raising opium were now devoted to cotton.

During the past year many English mills and merchants have quietly been making trade connections in America with a view to that outlet for surplus goods when needed; there are abundant indications that this condition is arriving, for advices from Lancashire indicate that new business is slow and that the present shipments of cotton goods are largely on orders taken some time ago. With a downward price tendency and a weak demand over there, we can expect a corresponding increase in importations at an early date.

The many kinds of legislation recently passed and pending, both constructive and destructive, undoubtedly contributes largely to the present unsatisfactory condition of business; it is difficult to see how much actual improvement can be expected until the uncertainty continually engendered in this manner is removed.

Prosperity seldom smiles on one industry at the expense of another; the general welfare of the whole country is so closely knit that a blow at any one constituent part is felt all down the line. Whether an individual railroad is wrecked by its management, or whether the whole railroad system of the country is shaken by Federal or State persecution, is only a matter of degree; all industry feels the shock. Whether one community is terrorized by the I. W. W., or whether a whole industry is paralyzed by unreasonable and restrictive legislation, is again only a matter of degree; the general business of the country feels the demoralizing effect.

The truth is that the welfare and happiness of practically all the people in this country are dependent upon the general condition of business. The stock in our railroads, banks, factories, mines and utilities are largely in the hands of relatively small investors; their other securities are largely held as investments by insurance companies, trust companies, savings banks and other repositories for provision of the masses against want and privation in their time of need. The "people" in such cases are not merely the work people engaged therein, nor the consumers only, but the whole people, comprising farmers, merchants, manufacturers, clerks, salesmen and saleswomen, mechanics, laborers, servants, widows, orphans, and all who are dependent, in every walk of life.

In their mad race for progressiveness some of our political friends seem to have become imbued with the intolerant and snobbish spirit of the English official and aristocratic class portrayed by Tennyson in his lines:

"We are not cotton-spinners all,
But some love England and her honour
Yet."

The duty of guarding the rights of the people entails the far heavier responsibility of conserving the welfare of the people. For example, denying the right of self-support to a dependent child should entail some other provision for its needs; refusing work to able-bodied children should carry with it compulsory education to prevent their idleness from breeding degeneracy; restricting women's work should not be without other opportunity of a livelihood for themselves and children dependent upon them; a minimum wage, particularly in industries employing unskilled women, where there is great competition for places, puts a premium on immorality for the slower and duller ones.

In spite of the agitation and misrepresentation of the few whose occupation is chiefly in so doing, the cotton manufacturers are doing a great work in improving the condition of work people, providing them with better homes and often with work rooms whose sanitary conditions challenge equality in even the public buildings and schools of the most progressive parts of our country. As a rule, these men are quietly solving their problems without noise and personal advertisement; they meet practical legislative betterment in a spirit of cooperation, but always without losing sight of the responsibilities that go with it—as when the manufacturers in the state of North Carolina insisted upon compulsory education accompanying the recent raising of the age limit for child labor.

Conditions in the United States vary greatly in different parts of its immense domain, and oftentimes blanket legislation that will be a help in one section may prove a hindrance in another. The development of children, both mentally and physically, varies greatly from the extreme North to the extreme South; state legislation affecting age limits and hours of labor is, therefore, both to be preferred and is more rational than Federal regulation.

In conclusion, I beg to repeat that it is my firm conviction that cotton manufacturers must relieve themselves of the burden of financing their yearly supply of cotton, or it will be a long time before the industry achieves that degree of economic independence necessary for unhampered movement towards the solution of its other problems.

Immediately following this address, the assocaition medal was presented to President Cramer. N. A. Cobb, Agricultural Technologist of the Department of Agriculture, then read a paper entitled "Spinning Tests of Different Government Standard Grades of Cotton." He gave a brief history of the movement and explained the official or government grades of cotton and the methods by which they were derived. He also outlined how the tests were made, and said in part:

ADDRESS OF DR. COBB.

"This work has been carried on at the textile schools at Clemson, S. C., and Raleigh, N. C., and at the Riverside and Dan River Cotton Mills at Danville, Va. The cotton in each bale was, as nearly as we could get it, exactly the correct grade. We were very particular, indeed, and that caused us a great deal of trouble, but when we started we knew that whatever number of bales we had, we could say they were uniform throughout; that every bale was opened and sampled by men who were practically blinded; the bales were opened and samples taken out throughout the bales, and unless they agreed they were thrown away and changed, because we felt that if this work were done at all, it should be done well. The cotton was stapled by the same expert and was agreed by him to be of the same length throughout the 120 bales. Now, when it comes to the body of the cotton, the only thing we had to go by was the origin of the cotton. It was sound cotton. We were rushed in buying this cotton. Congress appropriated the money and made it available on the first of July, and we were lucky to get it at all. We bought it to a certain extent regardless of its origin. We went to concerns that were well scattered, hoping that the cotton would represent cotton in their district. When we came to trace the origin of this cotton, we found, fortunately, it was distributed."

At this point Lewis W. Parker asked: "As a matter of fact, isn't that about the worst method you could have adopted? When you undertake to distribute the cotton you make a comparison of middling on one farm and low middling on another farm, and would there not be a wholly different tensile strength with reference to the growth of the cotton you had tested?"

In reply to this Mr. Cobb said if they could have had all the time they wanted they would have gone direct to the fields, but, as it was, they felt that with ten bales scattered over the Atlantic area and ten bales scattered over the interior or western area, that they would average up to be about the grades desired. He admitted that some of the tests showed exactly what Mr. Parker had in mind, and that their forecasts did not work out—that is, their ten bales did not show the average of that grade. Mr. Cobb then continued his address and said:

"Now as to the result of the test. I may say that at the back of the room there is a series of official grades which will show you the basis on which we are trying to build, and these spinning results show those grades to be the best set of grades that ever were gotten together, because they do show conclusively that the tensile strength of the cotton is uniform. The second exhibit shows you samples of the bales that were used and the different mill product up to the yarns, showing not only the yarns which come from each grade, but also the bleached yarns spun from the same grades.

"Then there is one additional point. It is not, of course, the purpose of the Department of Agriculture to enter into the cost of production, nor is it our object to go into the matter of the market values of any of the products, but the results may be placed alongside the corresponding market values, and contain the market value of the cotton on February 2, which we used; also the market value for all the waste products which were used, and the market value of the products, which was ascertained by consulting well-known firms dealing in those products. The cost of production is reflected in market value. So we have ascertained on that day, February 2, the market value of all the different products. Of course, cotton grades should enable us, if they are good grades, to buy on description, and, therefore, this work has nothing whatever to do with buying on samples. It may be easier to buy on samples, but the work is directed

toward making the official grades mean something more than cotton grades have ever meant in the past. When we say middling grade in the United States, it usually means cotton that has a certain amount of waste when it is spun under present conditions. The idea behind all this is that if you make these tests often enough and with brains enough, you will get these results. I would say that we were fortunate in having a good season for obtaining these grades of cotton."

"One of the results of the inquiry," said Mr. Cobb, "showed that the strength of cotton is increased by bleaching." He said that, as a rule, the breaking strength of cotton increased with the grade of the staple, but in some cases there was a variation from this general tendency. The breaking strength of good ordinary of Atlantic upland he placed at 56.4, of low middling 61.4, and of middling 60.5.

"The discrepancy is this," he continued. "The breaking strength of good ordinary Atlantic cotton, as a result of these tests, carried out as I have described, is 56.4. I want to call your attention to the fact that these figures, whatever criticism you may make of our manner of obtaining them, are reliable. They have been obtained at different places, by different men, under different organizations, and, therefore, as far as our work is concerned, I think you have proof that the work is well done. If you ask what could be the cause of the discrepancy, there are several causes that could be attributed, but just what is the particular cause I do not know. There may be a variety of features. We might have got several grades of that low middling lot that was particularly strong on account of the season at which it was bought, and there are other things regarding the discrepancies into which we have not gone very far. I believe in the future it will be better to increase the number of bales."

"When you bleached samples of middling, you say, as I recall it, that the bleached goods lost about 2½ pounds, but when you bleached low middling you gained 2½ pounds. Can you explain that discrepancy?" asked Mr. Parker.

Mr. Cobb replied as follows: "The reason for the irregularity of the bleaching I believe to be that we made the mistake of taking too little time. It is the same mistake that we made when we attempted to carry out our tests on two bales instead of ten, and we now expect to get an even test. When those tests are carried out, they show not only that cotton does not decrease in strength by bleaching, but there is every probability that when the bleaching is done in the right way its strength does increase. That was one very interesting result. We have not put that in the main body of our conclusions. That is contained in Mr. Earle's report. In Mr. Earle's report he has given some very interesting figures, by which he shows that the grade is increased in strength by bleaching."

Other questions were asked by Mr. Parker, Lee Rodman, T. L. Wainwright and others, attacking the reliability of the results shown by the government experts, and Mr. Parker expressed himself as believing that if the report was printed in its present form it would prove very misleading. He declared that, while he had the utmost confidence in Mr. Cobb's integrity and accuracy, he had very little confidence in the real beneficial results of his work. Mr. Rodman made the point that unless an allowance for tare, bagging, etc., had been made in carrying out the tests, the results were bound to be inaccurate, but no definite answer was made to this criticism.

The last paper on the program for this session was entitled "Studies in Foreign Cotton Goods Markets," by Ralph M. Odell. Mr. Odell made a number of valuable suggestions to the mill men present, and stressed the need of a well-organized cooperative campaign for foreign markets. He quoted statistics showing an increase of 90 per cent in piece goods exports in this country in the last six years. His address was well received, and much interest was manifested in the numerous samples of foreign cloths which he had on exhibition in the hall.

THE BANQUET.

Perhaps the most interesting event of the convention was the dinner on the evening of the first day, when nearly 800 members and guests gathered in the banquet hall, and, after enjoying the menu from little necks to coffee, listened to short addresses on the Duke warehouse plan by a number of speakers. Music was furnished by the hotel orchestra, which played many popular airs. Chorus singing on the part of the diners was stimulated by souvenir song books placed at each table by Fred Houser, of the Atlanta Convention Bureau, who went to New York with the Atlanta contingent expressly to present an invitation from Atlanta and induce the Board of Governors to name Atlanta as the next convention city. Another souvenir, which was provided by the Hoffman-Corr Manufacturing Company, was a poem entitled "It Can Be Done," neatly printed on a card and suitably illuminated.

The tables, which seated nine people, were neatly decorated with candelabra and cut flowers, while the balconies were hung with bunting. Flags were suitably draped behind the speakers' table, which extended across one end of the hall on a raised platform. Secretary C. B. Bryant, who had entire charge of the dinner arrangements, is to be congratulated on the perfectly working, frictionless manner in which the details were carried out.

President Cramer, acting as toastmaster, first called upon W. I. Lee, of the Southern Power Company, Charlotte, N. C., to tell something about the cotton industry. Mr. Lee responded in a happy vein, and was warmly applauded when he stated that, should foreign countries demand more cotton, the South could raise forty million bales just as it is now producing sixteen million bales.

The principal speaker of the evening was Hon. Frank A. Vanderlip, president of the National City Bank, of New York. However, President Cramer said that Mr. Vanderlip had chosen to discuss the Duke warehouse plan rather than introduce it; therefore he read the formal statement of the plan which had been forwarded to all members in advance of the meeting, after which he introduced Mr. Vanderlip, who spoke in part as follows:

The plan which your chairman has outlined for the creation of a comprehensive warehouse system to be operated in a manner which will give the broadest currency to credit obligations, based on cotton stored in these warehouses, is both interesting and significant. It is interesting as showing the tendency toward an important movement in the cotton trade. It is significant in indicating an awakening on the part of business men to certain distinctions in banking credit that are of great importance.

During the discussion connected with the enactment of the new banking law there has been much education of bankers and business men alike on the subject of ideal

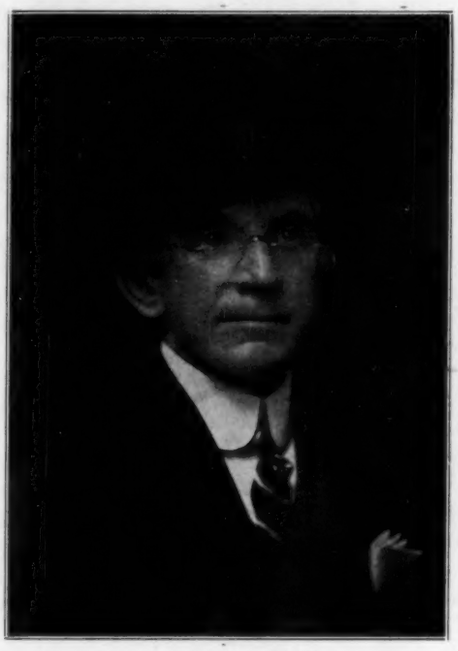
banking credit. Not having reached, in all respects, the settled commercial status that we find in some of the European countries, we have failed here to draw the distinction that is so clearly drawn in most European banking centers between loans for capital purposes and loans of a self-liquidating character, the funds for the repayment of which must naturally and almost inevitably come promptly into the hands of the borrower in the seasonal course of his business.

Our new banking act was designed to accomplish various things. In the minds of some of its advocates, the things sought to be accomplished, I fear, were not entirely economic. But the fundamental economic principles back of the idea which led to this legislation prominently included the creation of a discount market. That is to say, the creation of a form of bankable paper which would be so secured through the names of accepters and endorsers that the credit risk disappeared and the paper would find a ready market wherever there was money to loan, even though there existed in those quarters no knowledge regarding the credit of the original maker. Whatever will tend toward the creation of such a discount market will be helpful in lowering the rate of interest which the commerce of the country must pay. Whatever will tend to give broad currency to commercial paper, a currency wider than any knowledge of the maker's credit, will tend toward an equalization of rates, toward sounder banking conditions, and toward a lowering charge on commerce for interest. Such a proposition as has been here presented for giving a wide currency to loans made against cotton in warehouses is a fundamental movement—the first among a good many others now gathering force, I believe, that will eventually lead to a great discount market, where idle funds from the whole country, and, indeed, from international money centers, may find sound investment in short-term commercial credits.

It seems to me admirable that you men who are interested in cotton manufacturing are thinking of some improvements in underlying methods which may help you in the conduct and extension of your business. The business of cotton spinning and weaving cannot be cited as one of the phenomenal industrial developments of America, at least not in its recent years of history. Your business has grown, and it would be easy to present statistics that would be flattering to your management. On the whole, however, looked at from a world point of view, the cotton manufacturing business in America in recent years has only about held its own in comparison with world development. While great growth is shown, quite as great growth is exemplified in the statistics of some other countries. With all the advantages of location in the midst of the production of two-thirds of the world's supply of raw material, with the greatest homogeneous market in the world right at your hand, and that protected from foreign competition by high tariff, with the advantage of having the lowest rates of transportation of any country in the world, and of being historically of people of the greatest mechanical genius—in spite of all these advantages, we have not seen the cotton manufacturing business in this country forge ahead as have many great lines of industry.

The United Kingdom, importing every pound of cotton she manufactures, is still the world's great cotton mill. British spinners export as great an aggregate of cotton manufactures in a month as you do in a year. In fact, the United States takes its place alongside of India in its ability to supply the outside world with manufactured cotton goods. Germany exports well over twice as much as we do, and our total is exceeded by Belgium, France, and even little Switzerland. In the light of these facts, it is obvious that, while in a protected market of gigantic extent, we have been able to build up the greatest spinning business of any country in the world, we still are not fully supplying our own domestic market, importing over $60,000,000 worth of cotton goods annually, and the advantage of great manufacturing units has not enabled us to get our costs down to a point to make us even a factor of the first order in the world's markets for manufactured cotton. It well behooves you who are interested in this business, therefore, to think broadly and deeply on fundamental subjects in a way that may tend to cheapen your cost of production and put you in line with the other great cotton manufacturing nations for world competition.

One important element in the cost of production, of



PRESIDENT-ELECT TRACY I. HICKMAN.

course, must always be the cost of capital, and you are undoubtedly taking a step in the right direction when you endeavor to give a more universal character to that part of your credit operations which can be based directly on stored raw material, and by doing that make that portion of your capital cost you less, because the security for your loans will be more broadly understood and the capital attracted to them come from wider fields.

Broadly speaking, the cost of a manufactured product is made up of the price of raw material, expense of transportation and the actual cost of manufacture. The cost of raw material at its point of production is substantially the same to all users. The cost of transportation from field to mill is measured approximately by distance, and here you have a great advantage over all your foreign competitors. The cost of manufacture is made up of many elements, but among the principal ones are the cost of capital, the perfection of mechanical equipment, and the price and efficiency of labor.

On the side of the cost of labor you cannot hope, nor should you hope, to make that item in your cost sheet at all comparable with the same item in the cost sheets of your foreign competitors. I believe you must find ways of meeting world competition other than the per diem cost of labor item. Whether or not you have done everything you can in the perfection of mechanical equipment is a technical question of which you are a far better judge than I can be, but it is at least obvious to a layman that the United States is not taking the great lead in inventive appliances in cotton manufacturing that it has in some other fields, and it would seem, therefore, that there might be opportunity there to do something toward meeting foreign competition.

The great advantage which you hold is in cost of transportation. In view of high labor cost, there are impressive obstacles in the way of your meeting world competition by reducing the cost of manufacture. If the cost of raw material were reduced, however, the importance of the element where you have the advantage over all the world—the cost of transportation—would in time be further emphasized. Would it not seem, therefore, that one of the directions toward which this country might best turn its attention in any effort to take its place in world competition in this field should be in the reduction of the cost of raw material.

Although we supply nearly two-thirds of the raw cotton of the world, I still believe that we present, in our methods of cotton production, one of the most gigantic examples of incompeteney to be found anywhere. The huge and rapidly growing totals of our cotton crop are sources of satisfaction until we examine them in connection with our acreage. That examination discloses that four-tenths of a bale an acre is about the average of our production. In that figure, I believe, is to be found an important indictment against the United States, although it is by no means a type of indictment that lies solely against the cotton planters of America.

We are now devoting about 35,000,000 acres to the production of cotton, and a good crop is about 200 pounds of ginned cotton an acre. The Department of Agriculture, which seems to be the one arm of our government truly devoted to upbuilding and intelligent development of our resources, has demonstrated beyond any question what a shamefully small average yield this is.

At the present time the government has an arrangement with about 525 county agents in southern territory where cotton is the principal crop. These county agents carried on demonstrations with 12,000 individual farmers last year. The acreage involved was 104,000 acres. On these acres the department's instructions were carried out by the farmers with their own tools, teams, labor and fertilizer, the department merely furnishing the instructions. The result was an average yield of 1,005 pounds of seed cotton per acre. In the states where these experiments were carried on the present average yield is 546 pounds of seed cotton per acre. It is, therefore, claimed by the Department of Agriculture that, as a direct result of the instructions given to a limited number of farmers, the number of pounds of seed cotton produced was increased by approximately 95 per cent.

An important work is being done by cotton experts of the government is the introduction of long fiber Egyptian cotton in the southwest, especially in Arizona. This work may increase the area of our cotton belt. A year ago Arizona farmers in and about the Salt River Valley planted approximately 4,500 acres of Egyptian cotton. About 3,500 acres came to maturity the next year. The remaining 1,000 acres failed because of lack of water, poor cultivation and other hazards. But of the acreage which survived, the total yield was 2,200 bales for the 3,500 acres. Of this high-grade cotton the United States imports each year about 100,000,000 pounds at a cost of approximately $20,000,000, the price per pound in many cases being 50 per cent more than average American cotton, except the Sea Island varieties.

Planters in the southwest, in consequence of the fact that the yield per acre of the 1½-inch fiber Egyptian cotton is fully as great as cotton in the southern states, with the price much higher, have planted this year about 15,000 acres. The prospect is that this acreage will be greatly increased during the next few years.

From the demonstration which the Department of Agriculture has made, covering wide territory and many seasons, it is, I believe, a safe assertion that thoroughly efficient methods of cultivation would double our cotton crop on the same acreage now devoted to that staple. The world will be ready to consume that increase as soon as, under the most optimistic view, we may hope that it will be accomplished. I believe there is no more important service that you men who are engaged in the cotton manufacturing business can perform looking toward the development of the cotton industry than to do all you can to awaken public sentiment to the need for efficient methods of cotton cultivation. A realization of such improvements in methods as this branch of the government is trying to bring about will do more toward the upbuilding of your business, it seems to me, than you are likely to accomplish with the same effort in any other direction.

Is it not time for the maligned business men to direct some attention to the honest farmer and ask whether the people, whose demands politicians are so fond of formulating, should not have directed against them and their small business methods some of the same analytical criticism that it has been the order of the day to direct against big business?

The particular men who happen for the moment to be occupying official positions in Washington and elsewhere, and who are laying unbearable hardships upon the proper development of business in the United States, are not, perhaps, primarily to blame. The blame lies back of them in an ill-informed and frequently unfair state of public opinion. We have had a period of magazine and political muckraking which has brought about a condition where business success is looked upon as a crime, where the man who has demonstrated that he can manage his business well is excluded from public counsel, and where no small part of our government affairs has been put into the hands of men who would be incompetent to manage successfully modest business affairs.

I regret that I cannot at the moment see any marked tendency in the direction of business improvement. We have the promise of great crops, although there is much uncertainty between such an early promise and ultimate fulfillment. Should there be complete fulfillment of that promise, it would, of course, temporarily at least, bring with it improvement.

We may be permitted an increase of railroad rates, and that would be doubly helpful, first on the side of its direct benefit, but even more on the side of a promise of fairer

treatment. Business conditions are unsatisfactory, however, on account of fundamental reasons that are deeper than can be cured by one or both of these factors. The incentive for business men to take new risks, to expand their activities, to lead them toward the inception of new or greater enterprises, has received a serious check in the unfair attitude of public opinion as exemplified in Congress, by commissions, and in the printed page that reflects and molds the state of public opinion. I do not believe we can hope for permanent relief from the unsatisfactory position in which business is now placed until we can get a public opinion that more truly reflects a fair attitude based on correct economic principles.

It seems to me the highest duty of business men, particularly such an influential group as is represented here, to contribute the best that is in them toward the creation of a wiser, a sounder and a more intelligent public opinion in regard to business affairs. That can neither be done by silent acquiescence nor by dissatisfied grumbling at existing tendencies. You must take your active part in forming public opinion. It is time for business men to speak out. Where errors and mistakes have been made, let them be frankly acknowledged, but insist upon a better understanding of your methods, your problems and your aims. Let your voice be heard and your views expressed with frankness and honesty, and we may then hope that an intelligent and informed public sentiment will give to business men fair play and to business an enduring foundation upon which sound prosperity may be solidly built.

Others who spoke on the warehouse plan were: Ex-President Lewis W. Parker; W. A. Law, of the First National Bank of Philadelphia; Thomas P. Beal, of the Second National Bank, Boston, and John M. Miller, Jr., of the First National Bank of Richmond.

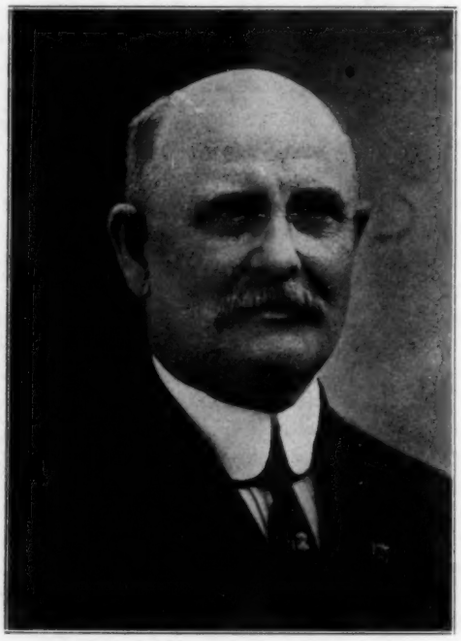
TUESDAY MORNING SESSION.

It was nearly 10:30 a. m. when President Cramer called the final session to order and presented John A. Fox, of the Mississippi Levee Association, who spoke briefly on the relation of the work of that association in the interest of cotton production in the delta district.

Arthur R. Marsh, of the New York Cotton Exchange, then addressed the association on "The New Rules of the New York Cotton Exchange." After sketching the history of the exchange and the manner in which its rules and methods had been evolved, Mr. Marsh said that, while they had been a long time trying to find out just what the South really wanted, "it has now become apparent to us that opinion formulating itself in Washington calls first for the adoption of the United States government standard types of cotton—the doing away with the standard types of cotton which the New York Cotton Exchange has preserved with absolute accuracy and purity ever since the southern cotton exchanges in 1874 adopted it. Accordingly, the New York Cotton Exchange has adopted as the basis of its classification the government standard types of cotton. In other words, our contracts here running a year ahead, anybody who, on the New York Cotton Exchange, buys a contract for delivery in April, 1915, will be buying a delivery based on government standard types of cotton, and from now on, as our month goes along, we shall automatically pick up the government types, and in twelve months we shall have automatically got rid of the American classification, which has lived its honorable history of forty years and is now to be thrown in the scrap heap!

"Before leaving that point I want to say one word more, and that is that the New York Cotton Exchange believes that it would be an advantage to the entire cotton trade if there could be an accommodation between the United States government standard types of cotton and the ordinary international types of cotton which were arrived at at a convention held in Liverpool in June, 1913, a convention at which all of the important cotton exchanges in the South were represented.

"We now come to the matter of the valuation of the grades of cotton for other purposes, and here we have accepted the principle of the valuation of the grades of cotton at their commercial value from time to time, instead of at values fixed only a few times a year. It is very easy to talk about using the quotations of the southern spot market, but how many are there here in this room that know that the greatest of all the interior spot markets in the South—the Memphis market—fixes its differences three



VICE-PRESIDENT SCOTT MAXWELL.

times a year, exactly as the New York Cotton Exchange does, and in the same months—September, November and February—and it is a curious fact that this exchange which does this is one of the exchanges that has recently adopted resolutions roundly condemning the New York Cotton Exchange for this very practice.

"Now, not only have we that situation in Memphis, but we have another great spot cotton market—Montgomery, Ala.—informing us that they simply base the differences on the New York Cotton Exchange—that is, all the differences they have; all interior spot markets in Texas are systematically kept track of, and that they are simply the differences that exporters can get for the cotton which they buy, or which the exporters can give on the basis of offers from the other side. In other words, in Texas and Oklahoma, Germany, England and Russia are fixing the differences today for America, and we have found that, with the exception of New Orleans and Galveston, Savannah is the single cotton exchange which systematically, invariably and scrupulously quotes the different grades of cotton day by day on the basis of actual transactions in the market. Now.

I need not say that when that is the situation in the spot markets of the South it has been impossible for us here in New York to attempt any mechanical method of taking an average of their quotations and applying them here. More than that, we find that these cities' quotations, such as they are, are based upon all sorts of standards of grades. You all know the Augusta standard has competed with the Savannah standard, but you do not know, unless you are actually up against it, that from one point to another all through the South there are variations in type of the different grades, and you do not know, perhaps, that, with the exception of the New Orleans market, and that only for delivery purposes, there is not a single market today which is actually using United States government standard types as the basis for its quotations of the different grades of cotton.

"The new crop, the coming crop of cotton, with the exception of the month of October, will all be delivered on the basis of differences made monthly. And in the light of the opinion we have been able to get, that seems to us as far as we can go. But we were prepared to go one step further without hesitation or demur. The moment the government of the United States takes hold of this question, goes into the South, compels the southern cotton exchanges to straighten this thing out and adopt the United States government standard types quoted on this basis, then we are willing to base our quotations on the basis of the quotations of the southern cotton markets. Until this is done we do not see how we can go further than we have.

"The question has come up in the exchange whether we should not immediately put into effect for all deliveries this new contract. You will easily understand that under the laws of the state of New York, the state that chartered us, we cannot interfere with outstanding contracts. We have contracts running a year ahead always, and we cannot interfere with them. But it has been suggested that we should adopt the new contract, and we probably should have done that before now had it not become apparent that Congress was more than likely to formulate our contract for us. We do not know what the form of that statutory contract is going to be. The matter is still in the hands of the committee in the House. They themselves do not know what will be done, and after they are through it will have to pass both the Senate and the House. It has seemed to us, therefore, that it would be unwise to adopt a new contract which conceivably may not be in effect but a few months, and we thought we had better abandon it. That, then, is the reason why the movement to put into effect a second contract side by side with the older contract has not yet reached a practical conclusion in the New York Cotton Exchange.

"That, I think, is all that I need to say about the new contract. It is a case of the New York Cotton Exchange accommodating itself to the opinion of the South just as soon as it could find out what that opinion really was.

"Now, I do want to say one or two words about the effect of this contract when it is put into use on the New York Cotton Exchange. One of the main objects of the critics of the New York Cotton Exchange has been to have a contract in New York which would sell always, no matter what the character of the crop, at a parity with the quotation for middling in the southern markets. I want to call your attention to the fact that we are going to lose something that we have prized a good deal when this new contract goes into force. The moment that contract goes into force we lose once and forever all buying of cotton in New York by southern states."

After speaking more than an hour, Mr. Marsh closed by predicting that the regulating of the cotton exchanges by the government would be but one step in its regulation of the cotton industry, and that in time it would also tell the spinner how he should buy his cotton and make laws to regulate his purchases.

President Cramer then changed the order of the program and called on Lewis W. Parker, as chairman of the Committee on Cotton Exchanges, to read his report, which follows:

REPORT OF COMMITTEE ON COTTON EXCHANGES.

Your Committee on Cotton Exchanges now renders this report to you at the conclusion of another year of effort on their part to secure reforms previously asked of the various cotton exchanges, and does so in a spirit of greater encouragement than evident in other reports.

The New York Cotton Exchange has either put into execution, or has assured the execution of, some of the reforms previously requested. It is to be regretted, however, that the exchange has not gone further than it has gone in this direction, and that its progress in reform has been so slow and the reforms yielded by it spread out over so great a length of time as to not be of the full result they should be.

As often expressed by this association, we believe that it would have been much better if needed reforms could have been accomplished by the voluntary action of the New York Cotton Exchange. After many years of delay, however, appeal has been made for congressional action, and there is now assurance that regulation will be had through congressional action.

This association is not opposed to cotton exchanges; it believes them to be to the best interest of both producer and consumer, of planter, of merchant, of manufacturer, and of the public, that there should be, through the publication of exchange quotations, a correct knowledge on the part of all of the value of cotton as a commodity.

An exchange, however, is assumed merely to reflect the price of the commodity in which it deals; it is the means by which buyer and seller are brought to a common basis—the barometer indicating the rise and fall in prices of the commodity in which buyer and seller are interested. When the exchange thus reveals the price of the commodity, it is of value to all; it can guide the planter in the disposition of his products; though living in some corner in the backwoods, he receives through the exchange quotations advices indicating to him to demand a fair price for his commodity; the spinner is likewise so advised as to the price of cotton entering into the cloth, and is, therefore, given information which may guide him in his sales. There can scarcely be an argument as to the advantage of the knowledge of current prices to the planter and to the manufacturer; whilst the benefit of this knowledge is not so evident to the purchaser of the manufactured cotton, it is, nevertheless, recognized by competent authorities.

In a circular letter of November 16, 1913, issued by Charles Fairchild & Co., members of the New York Cotton Exchange, and mailed particularly to purchasers of cotton cloth, the advantage of this knowledge is clearly expressed, as follows:

"You undoubtedly find that close attention to the raw commodity will often assist you in buying your cloth at the right time, and, therefore, add materially to your year's profit. The price of cloth is based largely on the price of contracts quoted by the New York Cotton Exchange, and we feel that your close attention to the conditions which cause changes on the New York Cotton Exchange would necessarily assist you in your daily business transactions."

This quotation merely emphasizes what this association has often claimed—that its members are intensely interested in the quotations of the cotton exchange, for whether these quotations are correct or not, the minds of the buyers of our products are influenced thereby, and, as a matter of fact, the prices we receive for our products are largely the result of the quotations of the exchange, whether these quotations be representative of the price of the commodity or not.

An exchange reflecting the true value of the commodity it deals in is an advantage to the public and is to be encouraged; an exchange which arbitrarily states the value of that commodity with relation to the law of supply and demand as applied to the commodity, and whose quotations are merely the result of the manipulative effect of large operators upon it, is a curse to both producer and spinner. Such an exchange must and should be so regulated as to compel its quotations to correctly state the price of the commodity on which it quotes, or, failing in such effort, such an exchange should be abolished.

It is in this light that we view the New York Cotton Exchange, and unless its rules can be so regulated by action of Congress as to compel the performance of its proper functions, it should, in our judgment, be abolished.

We believer, however, that Congress will pass such legislation as will be corrective, in a measure at least, of the evils on the part of the New York Exchange complained of by us. There are now pending before Congress a number of bills relating to cotton exchanges, some of them prohibitive of exchanges, others regulative. Your committee has opposed the enactment of such legislation as would be prohibitive; it favors the enactment of such as is reasonably regulative. In this light your committee has favored, with slight amendments, the enactment of two bills, one of these known as Senate bill 110, by Hon. E. D. Smith of South Carolina, and which, in its efforts to regulate, would use the mails as a medium, prohibitive of the use of improper manipulative contracts. Your committee has also favored the enactment of House bill 15318, which is also regulative in character, and declares in detail the characteristics of the proper contract, taxes a contract conformed to the requirements of the law in a very slight measure, whilst taxing the contracts not in accord with the legal requirements in great degree. The House bill goes into greater detail in the features of the contract to be recommended and regulated. It is most carefully and ably drawn, and your committee is rather disposed to believe that the exercise of the taxing power will be a better means of regulation than the prohibition of the mails. However, we would express our earnest appreciation of the efforts on the part of the authors of the House and Senate bills referred to to accomplish the results sought. We believe that each bill will be of great benefit if passed; we believe further, however, that results can be best accomplished by the use of the taxing power, and we recommend, therefore, that the Senate bill 110, which has already passed the House, should be amended so as to provide for the use of the taxing power in regulation of the cotton exchanges, and should be further amended by many sections of detail appearing in the Lever bill not appearing in the Smith bill.

There is no real conflict between these two bills. Both are aimed at the same result. Both will practically accomplish the same result, but there are some provisions of the Lever bill which are more certain to accomplish the result than the provisions of the Smith bill. Both bills would require a contract on the exchanges which is not in a measure outlawed, to contain the following requirements:

First—Recognition and acceptance of the standard grades made by the government.

Second—Recognition of middling as the basis of the cotton.

Third—Requirements that the differences at which grades above and below middling should be deliverable be established from day to day, or as often as necessary, by the Secretary of Agriculture, his determination to be based on actual market differences prevailing in an average of

LEWIS W. PARKER.

markets in which the commodity is actually bought and sold for commercial use.

Fourth—The prohibition of deliveries on contracts of cotton of undesirable character.

The Smith bill, with reference to this subject, states as follows:

"That in determining, pursuant to the provisions of this act, what markets are bona fide spot markets, the Secretary of Agriculture is directed to consider only markets in which spot cotton is sold in such volume and under such conditions as customarily to reflect accurately the price of middling cotton and of other grades of cotton for which standards shall have been established by the Secretary of Agriculture."

This is as desired by this association, and we commend the clear method of its expression in the Smith bill.

The Lever bill is more clear in its expression of the character of undesirable cotton prohibitive under delivery than is the Smith bill, and, in our judgment, the provisions of the Lever bill upon this subject should be incorporated into the Smith bill.

We commend efforts to provide for a minimum length of staple which can be delivered upon contracts, and it was with surprise that we learned at a hearing in Washington

the admission of representatives of the New York Cotton Exchange as to the extent to which cotton of five-eighths inch length in staple, or even at times one-half inch length in staple, had been delivered on contracts on the exchange, thereby depreciating to a great degree the whole basis of the contract and causing injury to both producer and spinner, and benefit only to the manipulator who was using this distribution for a personal gain at the sacrifice of the legitimate business interests of the country.

We believe such use of the New York Cotton Exchange has been made within recent months. There has been presented within the last three months the publication on the part of the New York Cotton Exchange of quotations of its contracts for delivery indicating the price of the raw material at times as much as 2 cents below the real value of that material and 2 cents below the price that the producer was obtaining therefor in the South, and fully 2 cents below the price being paid by the spinner for delivery of it to him. Necessarily, this has been most injurious in its effects to both spinner and producer, and has had the effect of misleading buyers of cloths and giving them an erroneous impression of the price of the raw material being used in consumption. None of us like to be imposed upon, and it is most natural that the buyer of cotton cloth who conceives from quotations of the New York Cotton Exchange that the price of the raw material is 2 cents less than it really is, should fight most earnestly the payment of prices necessary to be secured by the spinner in order to make any profit in production.

These low prices on the New York Cotton Exchange we believe to be the result of manipulation on the part of large operators who are able to use the New York exchange as a means for depressing prices on account of the fact that the rules of the exchange permit arbitrary differences, the delivery of undesirable cotton, thus depressing the whole basis of quotations; we deplore conditions under which large operators can, through manipulation and improper use of the exchange, depress cotton at one time and advance it at another, when the actual price of the raw material is changed but little, if any, during the interval. We cite in this connection the action of large operators on the New York exchange in practically making a corner in March contracts, causing advance of these contracts to 80 points over May contracts, when the natural law of economics would justify a price of 20 points, or certainly 10 points, on the part of May contracts over those of March.

These conditions could and should have been regulated by the New York Cotton Exchange itself. After many earnest pleas this exchange has failed to regulate, and we now, as stated, commend the efforts of congressional leaders to regulate by law that which could and should have been regulated by the exchange itself.

We are aware of the fact that it is claimed by some that the contract which is sought to be secured by governmental action is the spinners' contract, and it is claimed by some that it would be contrary to the interests of the planter. At no time in the history of this association has it sought to depress prices of cotton. It believes that the producer of cotton is entitled to a fair return for his commodity, and the members of the association are at all times willing to accept the arbitration as to price fixed by the natural law of supply and demand. We condemn, however, manipulation, whether its effect be to advance or depress prices. The general effect of manipulation which we complain of has been to depress prices, and the only times that this association has expressed its position relative to the manipulative quotations of the New York Cotton Exchange has been when the effect was to depress prices.

We acknowledge that the contract which we commend in other sections of this report will have the effect of raising the quoted price of cotton; the producer will, therefore, be given knowledge of the fact that his commodity is worth much more than it is quoted as being worth on the New York Cotton Exchange. We believe the effect of this will be to push the price of the raw material higher in some degree, and certainly to guide the producer against imposition in the sale of his product. Notwithstanding this, we favor legislation because all that is desired and sought by this association is to accomplish such results as will force the exchanges to indicate in their quotations the real price of the raw material to reflect by their quotations this value rather than to issue quotations misleading as to prices.

We earnestly urge provisions of all characters with relation to the exchanges which are fair to both buyer and seller, enabling thereby a higher base of price to be recorded than is now indicated on the exchanges. If this be a spinner's contract, then surely it is also a contract to be sought in behalf of the producer. This is certainly the view taken by members of Congress, for it is well known that the authors of both the Smith and Lever bills have been most earnest in advocacy for many years of legislation in behalf of the cotton producer—in fact, so earnest that Senator Smith is commonly known as "Cotton Smith."

As justifying our own criticisms of the New York Cotton Exchange quotations, we would quote from the following circular letters issued by members of the exchange. From the letter of Herklotz & Co., of March 30, 1914, as follows:

"We have been suggesting to our mill friends for several years past the advisability of watching the differences prevailing between the Liverpool and New York markets, with a view to their buying in Liverpool whenever the character of the crop raised would justify purchases in Liverpool instead of New York, as their contract is much stronger than ours, until the government standards are adopted. This naturally applies to any hedge purchases which might become necessary against forward sales of cotton yarns and goods, as the Liverpool market reflects more readily the values of spot cotton South. You are doubtless aware of the fact that the New York contract will be stronger after November 30th, when it will no longer be permissible to deliver cotton below strict good ordinary white and strict low middling tinged. There will be a revision in September and also in November, but not until next December will there be monthly revisions, and as these changes in our system may greatly influence the relative differences and parities with the South, it will be well to bear them in mind."

In the circular letter of Hayden, Stone & Co., March 6, 1914, they say:

"In the past, contracts (that is, on the New York Cotton Exchange) have shown a decided tendency to pull away from actual values to such an extent that the purchase and sale of hedges on the cotton exchange has become almost a pure gamble."

Also:

"This criticism by factors of the system now in vogue at New York for grading cotton on the exchange, which is so far at variance with the methods of grading of the cotton producing centers, by the United States governmental system that the feeling is most prevalent that in its present form it is no longer of any value as a hedge against actual."

From a letter of Hopkins-Dwight & Co., April 17, 1914:

"The first notice day for May delivery will be Tuesday, the 28th inst., and whether May contracts will continue to decline relatively or go to a further premium depends entirely upon what the large interests here do, who control practically our entire stock."

In other words, the price of cotton as received by the

New York Cotton Exchange is to be dependent upon the quotations made through the operations of large interests who control the *entire stock* of 80,000 bales rather than by the owners of the millions of bales still in the hands of producers and spinners.

From a letter of McElroy & Keplinger, April 9, 1914:

"Oppressed by the weight of undesirable grades in our own crop and the promise of a large surplus from India, speculators recklessly sold the near months short. Prices generally have advanced over $6.00 per bale on the old crop. This was really a readjustment from a false position."

These quotations could be repeated many times, but we would close with reference to the following quotations adopted by the Vicksburg Cotton Exchange, of Vicksburg, Miss., several months ago, which have also been adopted by a large number of other agents and representative bodies of the South, and which have received the approval of cotton merchants and cotton spinners:

"Whereas, in the opinion of the members of this exchange, the form of future contracts in use by the New York Cotton Exchange constitutes nothing more than a medium for gambling; that it does not represent the real value of cotton as established in the spot cotton markets of the world; that it absolutely fails to provide a safe, trustworthy or legitimate hedge, and that through its form and application, both unfair and arbitrary, it lends itself to gambling operations by large dealers and to the detriment and demoralization of the cotton trade."

"Whereas, in the opinion of the members of this exchange, the future contract of the New York Cotton Exchange is devoid of the essentials of a fair, just and correct contract, that in placing in the hands of men of large capital the power to dominate the cotton market, whose operations unsettle and depress business, it is used to the great injury of the general cotton trade."

The above quotations are more extreme in language than we have ever expressed ourselves, but it may, nevertheless, be said to reflect the opinion of some well versed in conditions. We therefore earnestly commend efforts to regulate the unfair practices on the exchanges, particularly on the New York Cotton Exchange. We believe that the New Orleans exchange in the future, as in the past, will be operated so as to meet the reasonable requests of this association, of the public and of Congress, and that the New Orleans exchange can be relied upon to remodel its contracts in any way necessary to establish a parity between the quotations on the exchange and spot prices of cotton. This is all we could desire and could ask.

Mr. Parker spoke earnestly and at some length of these and other conditions after concluding his report, and the manner in which his remarks were received indicated that the mill men were with him practically unanimously.

A. A. Thompson, of Raleigh, N. C., also spoke along similar lines.

President Cramer, as chairman ex-officio of the National Council, read a brief report, and introduced John P. Wood, who explained the work of the Textile Bureau. A. M. Patterson then read a short paper on the Textile Alliance and its objects. President Cramer also made some few further remarks on cotton warehousing and cotton laws in the southern states.

R. M. Miller, Jr., chairman of the Committee on Tariff and Legislation, said in part:

"Our industry, in our judgment, has not yet felt the full effect of the present tariff rates. Importation of textile goods for the first five months under the new law are somewhat in excess of the same period under the old law, but not to such an extent as to cause alarm. We attribute the small importations to the fact that the cotton business has been unusually active and profitable abroad for quite a while, while our American trade has been depressed and in many cases unprofitable; hence our market is not yet attractive to the foreign manufacturer. However, when these conditions are reversed and our trade improves and foreign markets become depressed, then we must be prepared for and expect to meet the fiercest kind of competition.

"To maintain our market, therefore, is going to test the nerve and ability of every cotton manufacturer in this country, and though straining under this new load imposed upon us, and beset on all sides by more or less adverse influences beyond our control, yet let us determine to stand together and refute that unsupported charge of one man that we are industrial cowards."

James P. Gossett read the report of his Committee on International Federation, which was referred to the Board of Governors. Committee reports were also read by C. E. Hutchison and Capt. E. A. Smyth. C. B. Bryant, secretary and treasurer of the association, read his annual report, and Mr. Phillips read a short paper on financing cotton in southern warehouses.

Fred Houser, secretary of the Atlanta Convention Bureau, then made a short address, inviting the association to hold its next meeting in Atlanta. He was followed by T. I. Hickman, who extended an invitation of a like nature on the part of the city of Augusta.

The new officers elected were as follows:

President—Tracy I. Hickman, Augusta, Ga.

Vice-President—Scott Maxwell, Cordova, Ala.

Secretary and Treasurer—C. B. Bryant, Charlotte, N. C.

New Members of the Board of Governors—John A. Law, Chairman, Spartanburg, S. C.; J. W. Cannon, Concord, N. C.; Leroy Springs, Lancaster, S. C.; and A. W. McLellan, New Orleans, La.

Members of the National Council—Stuart W. Cramer, Charlotte, N. C., with T. L. Wainwright, Stonewall, Miss., as alternate.

After being escorted to the chair, President-elect Hickman made a short address, in which he called attention to the fact that his father was the first president of the South's first cotton manufacturers' association. After passing a few resolutions the meeting adjourned.

Tracy I. Hickman, the new president, is president of the Graniteville Manufacturing Company, one of the oldest plants in the South, and also one of the most modern from the standpoint of equipment and methods. An illustrated historical sketch of this plant was published in COTTON for January, 1914.

Scott Maxwell, the new vice-president, needs no introduction to the readers of COTTON. Mr. Maxwell is agent for the Indian Head Mills of Alabama, at Cordova, Ala., and is one of the most successful of southern manufacturers. He came into the South from Maine more than nineteen years ago, and has worked his way up from overseer to agent. He has always taken an active part in the work of the association, and has served as a member of numerous committees and on the Board of Governors.

John A. Law, the new chairman of the Board of Governors, is one of the group of South Carolina manufacturers who commenced to take an active part in the work of this association some five or six years ago. He is president and treasurer of the Saxon Mills at Spartanburg, and is also interested in several other cotton mills as well as a number of financial institutions. The other officials elected are equally prominent and successful cotton manufacturers whose names are well known throughout the industrial South.

Georgia Cotton Manufacturers' Association.

The fourteenth annual convention of the Cotton Manufacturers' Association of Georgia was held at the convention hall in the Piedmont Hotel in Atlanta on Friday, May 8th. Although the first session of the convention was not until 2:30 in the afternoon, many members came in the night previous and the hotel lobby was thronged all the morning with members renewing old acquaintances and discussing mill and market conditions.

Promptly at 2:30 P. M., President F. B. Gordon, called the first session to order and introduced the Rev. Dunbar H. Ogden, pastor of the Central Presbyterian Church of Atlanta, who made the invocation. The roll call and reading of the minutes was disposed of by unanimous consent, and then President Gordon called upon Governor John Marshall Slaton, who rendered the address of welcome on behalf of the State of Georgia and the City of Atlanta. The response to this address of welcome was made by J. D. Massey, Treasurer of the Eagle & Phoenix Mills of Columbus, Ga., who spoke in his usual humorous style.

Next on the program came the annual report of President Gordon, who, however, made this report a brief one, owing to the very interesting committee reports and addresses that were upon the program and which he indicated he had no wish to delay.

The first committee report was read by Chairman S. A. Carter of the Legislative Committee, who called attention to the rather peculiar coincidence that although the cotton manufacturers of Georgia had been assisting in the drafting of child labor bills for several years in an endeavor to get one passed by the legislature that would annul the earlier child labor law of 1910, which allows children to be worked as low as 12 years of age, it has so far been impossible to get this law passed by both the House and the Senate. Another law has been prepared this year incorporating a clause asked for by a certain senator last year, which is known as the "indigent parent clause," and without which this senator said last year, he would never allow a child labor bill to go through. On the other hand there are members of the House who are equally opposed to having this indigent parent clause in the bill and therefore it seems as if the legislature was deadlocked and it is very probable under the circumstances, that unless they can get together on this question, no bill will go through again this year.

The next committee report was that of the Traffic Committee which was read by Capt. H. P. Meikleham, of the Massachusetts Mills in Georgia. Capt. Meikleham impressed upon the members of the association the need of cooperative efforts and the universal support of the traffic bureau, which is rendering a very efficient service to those members who are actively cooperating with it. He indicated that it was absolutely impossible for the traffic manager to sit in his office and read the minds of members, who, through carelessness or neglect, failed to send to the traffic manager the necessary data to enable him to render them assistance in procuring better rates, or in the way of securing refunds on overcharges, etc. He read a rather detailed report from C. W. Chears, the traffic manager of the association, and much enthusiasm was expressed by many of the members in the work of this department.

At this point President Gordon introduced Dr. K. G. Matheson of the Georgia School of Technology, who wished to address the members of the association in connection with a new power plant and equipment which this school is now endeavoring to secure. This address was well received and it was later recommended by the president that the membership of the association should render any individual assistance they might see fit to this very worthy cause.

Fuller E. Callaway, the chairman of the Tariff Committee, was next called upon for his report and stated that there was very little to report inasmuch as the tariff question had practically been settled. He said that while there were several exceptions to the rule, the majority of southern mill men were not seriously injured by the tariff reduction. He told several stories to illustrate his point, and discussed a number of other specific items, which, while not directly related to his report on the tariff were of great interest to the members of the association.

Oscar Elsas, chairman of the Committee on Cotton Baling and Tare, then presented this committee's report as follows:

The subject of tare and kind of bagging on cotton is one of vital importance to all users of the staple. Our experience with the sellers of cotton has led us to believe that very few consumers pay sufficient attention to the tare, the result being that each and every one is paying for bagging instead of cotton. After the correct system is once started, it is very simple to carry out. For your information we attach herewith forms which illustrate one of the systems now in use at a Georgia mill.

Exhibit 1. Forms of Cotton Contract.

CONFIRMATION OF PURCHASE OF COTTON.

To JOHN DOE, MONTGOMERY, ALA.:

We confirm your sale to us and our purchase of you by
Wire
Telephone of 50 bales American Cotton United States Government Standard Classification. Basis GOOD MIDDLING.
In person

Nothing above GOOD MIDDLING. Nothing below MIDDLING.

No bale or bales below the lowest grade specified to be delivered.

Price to be 12.50 delivered our side track, Saleson, Ga., all freight and trackage to be prepaid. Exchange to be paid by seller.

All cotton if

Compressed, Tare not to exceed 24 lbs. on any one bale.
Uncompressed, Tare not to exceed 22 lbs. on any one bale.

Cotton delivered under this contract to be the product of territory adjacent to MONTGOMERY, ALA.

Shipment to be made by you not later than DEC. 10th, 1914.

Car number to show on Bill of Lading.

Copy of Bill of Lading must accompany invoice.

Differences:

Strict Good Middling	
Good Middling. BASIS	
Strict Middling	⅛ off
Middling	¼ off
Strict Good Middling Tinge	⅛ off
Good Middling Tinge	¼ off

For further conditions constituting a part of this agreement, see other side.

All conditions to be considered warranties.

Contract No. 223.

Please acknowledge on slip below.

Date Dec. 1st, 1914.

Saleson Cotton Mills.
By J. I. B.

MONTGOMERY, Ala., 12/3/1914.

SALESON COTTON MILLS, Saleson, Ga.

Your contract No. 223.

We acknowledge receipt of your confirmation of DECEMBER 1ST, 1914, purchase of us of 50 bales of cotton, which covers the agreement between us.

JNO. DOE.

The reverse side of this contract is as follows:

TERMS OF CONTRACT.

To be dry cotton, of good, heavy body, strong staple and good spinning quality, free from dust, sand, gin-cuts, nappy, curly, or rough ginned cotton, water packs, seedy, falsely packed, mixed packed, rebaled cotton, country damage, etc., and all other imperfections, either in body, staple or packing. Dusty or seedy cotton, meaning cotton the value of which is reduced ⅛c per lb. or more because of such dust or seed.

Staple to be regular and running 1 inch to 1 1/16 inches long.

Claims for excess tare to be valid at any time within fifteen months from date of this purchase upon receipt of weigher's certificate.

Claims for internal damage, false packed or other internal deficiencies to be valid at any time within one year from date of delivery of this purchase, upon receipt of weigher's certificate.

Cotton arriving wet is to be set aside and shipper notified, and is not to be weighed until in the buyer's opinion it is dry.

Seller hereby agrees that in case of dispute as to grade or staple, buyer is empowered to have samples drawn by a party who is without interest in the cotton in question, if seller refuses or neglects to appoint a representative for such purpose, after three days' notice by registered mail. Such samples are to be sealed and sent to the Inspection Bureau of the New York Cotton Exchange for decision or report on points in dispute, and such decision or report to be final. The Inspector-in-Chief of the New York Cotton Exchange is hereby empowered to immediately proceed with the classing or stapling of samples as may be submitted without further notice or consent from the parties to this contract, consent therefor being hereby given.

Invoice must show number of bales of each grade and value of each must be shown separately.

Each invoice must be dealt with as a whole, and out-turn to be made to shipper not later than twenty days after receipt of all cotton covered by the invoice, provided that in case of congestion of deliveries caused by accident, embargo or strike, the time for making out-turn or claims shall be extended until such congestion shall be relieved and normal conditions restored.

All cotton must hold up to invoice weights.

Each bale shall bear a tag showing name of shipper and consignee, and mark and number of sale.

Should seller dispute any reclamation for loss in weight, he hereby agrees to make re-weight within ten days, and upon re-weight of cotton, should it be found that there is a loss in weight, seller agrees to pay immediately the value of such loss in weight and all expenses incident to the re-weighing of the cotton.

Time is essence of this contract.

Shipments not made on time to be completed only at buyer's option.

Any cotton tendered not in accordance with this contract may be rejected without rejecting the entire shipment, and buyer may accept and use such part of the cotton as in his opinion complies with this contract. As to such cotton so rejected, seller agrees to refund purchase price of and all expense incident to rejection of any portion of any shipment under this contract within ten days from mailing of such rejection.

If seller demands an arbitration of rejected cotton and it is decided that buyer must accept any or all of such cotton, buyer must make payment on presentation of draft for the cotton decided as tenderable, together with expense charged to or paid by seller on such cotton.

Seller further agrees to replace rejected cotton within ten days of receipt of notice of rejection, except in case of arbitration, in which case seller must make replacement within ten days of receipt of report of the Inspector-in-Chief of the New York Cotton Exchange.

Where cotton is product of points other than herein certified, draft shall be made payable only after arrival, inspection and acceptance of cotton by the buyer.

All Bills of Lading accompanying drafts must show the loading of the cotton—i. e., the initials and numbers of the cars and the number of bales therein. The weights shown on Bills of Lading must agree with the invoice weight, and the following certificate signed by the initial bank forwarding the Bill of Lading must also appear thereon, to-wit: "We hereby certify that the signature of the agent of the Railway Company whose name is signed to this Bill of Lading has been acknowledged by him as genuine, and that he has acknowledged to us that the said Railway Company is in possession of the shipment of cotton specified therein."

No bale measuring more than 26 x 54 inches shall be tenderable except at an allowance of $1.00 per bale.

All bales weighing over 300 lbs. and less than 400 lbs. shall be penalized 50 cents per bale.

All cotton must be covered with "good bagging," free from holes.

All matters not expressly agreed on under this purchase to be settled under the Carolina Mill Rules as revised 1912.

There are no terms or conditions outside of this agreement, and any change must be in writing by an agent duly authorized.

Exhibit 2. Loose Leaf Cotton Record.

Exhibit 3. Forms used for Reporting to Shipper when chargeable with excess tare.

Exhibit 4. Form of Cotton Tag.

The first point that impresses us is the varied qualities and styles of tare, especially bagging that is used on American cottons. For instance, in the state of Georgia, from which our mills receive most of their cotton, we have found: about 60 per cent new bagging and ties; about 30 per cent second-hand bagging and ties in all conditions of repair; and about 10 per cent sugar bagging and second-hand ties.

On all compressed cotton the American method of sampling and shipping calls for so much patching, and in some cases re-patching, that the largest portion of excess tare comes from points from which you have received compressed cotton. Through personal inspection at various compresses, we find that excess tare comes from one or more of the three following causes:

First. A shipper, in shipping 100 bales, delivers to the compress a given amount of bagging for patching, which if properly applied, would figure out approximately the amount of tare allowed. However, in compressing, due to lack of proper supervision, or carelessness, the negro laborers, instead of applying one patch, above or below, seize two or more to put on one side, and a like quantity on the other side of the bale. In order to dispose of the patching as soon as possible, and simplify their work at the press.

Second. It is the custom of a great many shippers to put on excess patching to the amount of the franchise allowed on compressed cotton, and they further frequently add two to seven pounds per bale on cotton which is to be a boat shipment, figuring on the percentage of moisture to be taken up by the cotton en route.

Third. The absolutely necessary extra patching, which is sometimes called for,—though not as frequently as one might suppose,—because of the unsystematic and wasteful method of sampling in vogue in this country, which permit of cutting and slashing a bale all over both sides.

Since the mills have taken up the question of excess tare a trifle more vigorously than formerly, some few of the more progressive cotton shippers make a practice of having their own inspector at the compress to oversee the process of opening, patching, and compressing. This tends to do away with the excess tare mentioned from the first cause.

The second is a much harder practice to overcome. We see no way for those who receive their cotton by water to meet the conditions except by a system, vigorously applied, of making reclamation for all excess tare on individual bales, the right to do which can only be obtained by an individual bale tare clause, such as is embodied in the contract forms herewith attached.

The system of opening and weighing tare on ten bales selected at random from a shipment of one hundred bales, does not in our opinion, properly meet the second condition. It is just as possbile that the ten bales selected may be either the heaviest or the lightest in the shipment; or, as is the case in some plants, it is frequently a physical impossibility for the mill receiving the cotton to handle the tare situation by this method.

The third condition we see no means of overcoming except by a vigorous, well-directed effort on the part of the mill men and brokers to the standardization of a method of packing and sampling.

INVOICE DATE Dec. 20, 1914 PAGE

PRICE 12.50 BASIS Good Mid. STAPLE Ordinary

50 B/C ON CONTRACT NO. 223 SHIPPER John Doe

SHIPMENT COMPLETED 12-27-1914 ADDRESS Montgomery, Ala.

JOURNAL VOUCHER NO.

REMARKS	SHIPPER'S NUMBER	MARK	BALE NO.	INVOICE WEIGHT	TAG NO.	GRADE	RE-WEIGHT	CAR NO.	OPENING WEIGHT	TARE	DATE OPENED
Compressed	21	Bag	1	498	501	Ym	495	10	493	27	1-5-15
"	12	"	2	515	502	Sm	516	"	515	28	12-20-14
"	43	"	3	584	503	m	585	"	581	23	2-9-15
Flat	84	"	4	501	504	m	500	"	498	21	2-15-15
"	97	"	5	572	505	Sm	571	"	572	25	1-7-15
"	65	"	6	456	506	m	454	"	454	24	2-6-15

EXHIBIT 2.

As to the character of bagging, and as to the excess tare, the records show, taking three different sections, Newnan, Macon and Atlanta as follows: Atlanta uses the best bagging, Newnan next and Macon the poorest. Newnan shows the least percentage of excess tare, Atlanta next, and Macon the largest.

Careful observation and the lodging of complaints promptly, will soon prove to you that those shippers who have abused your confidence most by giving you the worst bagging and the most excess tare, will soon get into line and become more interested in this feature, giving you cotton that comes within the terms as were understood so far as excess tare and character of covering is concerned.

In making charges for excess tare it is well not to make a charge unless the excess is at least two pounds over the maximum allowed by contract. In all instances where the excess is only one pound, no charge should be made, with the fact in mind that a possible shrinkage by moisture, or difference in scales, might make this small amount questionable; therefore it is well to make a practice of allowing one pound more than the maximum provided by contract as —for want of a better name—a factor of safety.

If the forms submitted are used, or some similar to those, you will be able to collect your claims for excess tare, and we would suggest that you consider it along the following lines: in the first place, the maximum amount of excess is provided for in every contract, and provides for all tare claims being legal for a period of twelve months from date of receipt of cotton. When the cotton is opened in the opening room, the tare is stripped from the bale, carefully cleaned of adhering cotton, the bagging and ties being weighed separately, in order to determine which part of the tare, if any, carried excess. If it is found to come within the provisions of the contract, the tare immediately

SALESON, GA. Feb. 16, 1915.

MESSRS. John Doe

Montgomery, Ala.

TO EXCESS TARE ON TO SALESON, COTTON MILLS, DR.

OUR TAG NUMBER	SHIPPER'S MARK	SHIPPER'S NO.	LBS. TARE	LBS. EXCESS	@	AMOUNT		
501	Bag	21	27	3	12.50		37	
502	"	12	28	4	12.375		49	
505	"	97	25	3	12.375		37	
506	"	65	24	2	12.25		25	
						#1.	48	

EXHIBIT 3.

goes to the waste pile. If found in excess, a sworn weigher is notified, who, in company with the opening-room man, carefully rolls the bagging and ties, with all the shipper's identification marks,—such as tags or brands,—carefully placed in the roll, and weighs this with care. On this roll he places a tag, giving date, shipper's mark and number, mill tag number and the weight of the tare at the time of opening, which information is placed on the Cotton Record tag and sent to the office in the regular way. The tare should be kept in a place provided in the warehouse for such purposes, and held until the shipper has been notified of the excess, which should be done monthly, and the claim paid for; or, if disputed, keep the tare for the shipper's inspection, the identity of which can be sworn to by the sworn weigher and the opening-room man.

The charge for excess tare is made from the record on the tag sent to the office, which is identical with the record on the tag attached to the bale. This, it would seem, makes a system that it is impossible for a shipper to question, and is much more accurate and satisfactory to the buyer than the average of tare on a lot of ten bales, as mentioned.

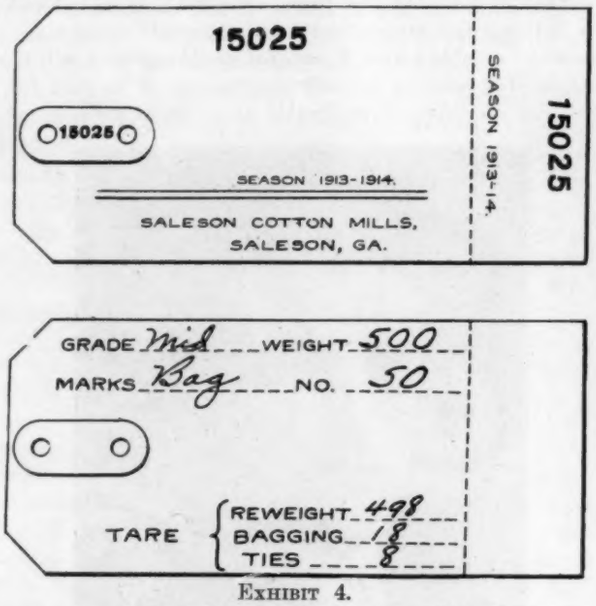


EXHIBIT 4.

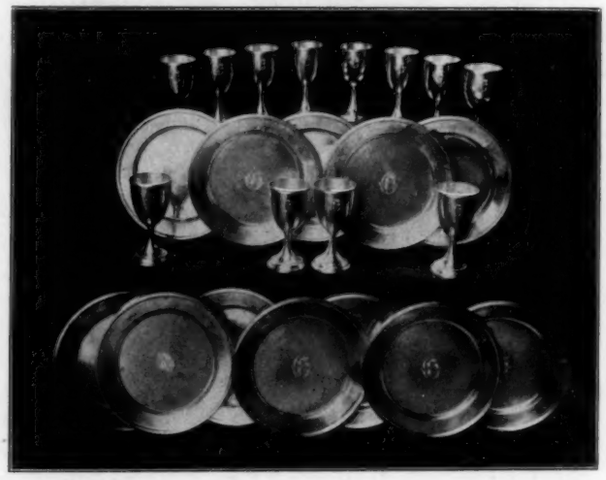
Another feature of the tare question, which is of deep interest to consumers, is the question of country damage, as increased or decreased by proper covering. Cotton covered with regular cotton bagging, in good condition, is much less subject to damage from having been wet, than that covered by any other covering. It is found in all cases of heavy damage, that the cotton has invariably been covered with a heavy, closely woven covering, of which sugar bagging is the most common. A properly packed bale is partially covered on the ends. When compressed it is completely covered. With regular bagging this covering is frequently several thicknesses, but the fact that the covering is of a very open weave, permits of a freer passage of air and a much quicker drying out of the moisture. Sugar cloth coverings, most of which is second-hand, is a much closer woven fabric of heavy construction, and after becoming wet, is practically air-tight.

We can't see the necessity for excess tare. We believe that a proper interest by the consumer in the question of excess tare, a careful system of tare reclamation, an individual tare clause in consumer's purchasing contracts, and a vigorous system of reclamations in all cases of excess tare, would practically abolish this pernicious system of packing. It is a dead loss to the consumer in value paid for cotton, excess freight, extra cost of handling in the mill, cost of guarding against the evil, and extra cost in the office because of unnecessary clerical work. We further believe that vigorous efforts to improve the quality of covering used on cotton would eliminate, to a large extent, the question of excess tare. We believe that a proper representation of these facts to reliable shippers would induce all shippers to put their own inspectors at compress points to inspect the handling of their own cotton, as is now being done by some two or three shippers.

The next item on the program was the formal address entitled "Legislation and Business," by the Hon. James A. Emery, of Washington, D. C., Chief Counsel for the National Association of Manufacturers. This address, which contains much that is of serious import to the industrial world, is printed separately in another part of this issue.

At the close of Mr. Emery's address, adjournment was taken until 6:30 P. M., when the members were to reconvene in the main dining room of the hotel for the annual association banquet.

Promptly at the appointed hour, the members of the



THE SILVER SERVICE PRESENTED TO PRESIDENT GORDON.*

association and their guests gathered in the lobby and at a signal from the chairman of the arrangement committee, filed to their section of the main dining room, which was separated from the balance of the room by screens and tubs of palms. After the serving of the dinner had been completed, President Gordon rapped for order, and instructed all members to immediately repair to the convention hall on the 9th floor for the evening session of the association. At this point Fuller E. Callaway requested President Gordon to withhold that order for a few minutes, as one of the gentlemen present wished to make a speech. Whereupon Lee M. Jordan, the association attorney, arose and in a brief but happy manner recounted the history of the association during the past fourteen years, and the sterling value of certain members of the association, who, during that period, had served the association faithfully and well. He reminded the members particularly of the able work performed by the retiring president, Fred B. Gordon, of Columbus, who was completing his sixth year in the service of the association as president, and then stated directly to Mr.

* Thanks are hereby tendered to Maier and Berkele for assistance rendered in making this photograph.

Gordon that it gave him great pleasure as the spokesman for the entire association to present to him a slight token of the association's gratitude and regard for his past services both as an officer and in the ranks. He then presented Mr. Gordon with a silver service which is illustrated herewith. President Gordon responded briefly and with much feeling. The members and guests then returned to the convention hall.

It was nearly 9 o'clock when President Gordon called the meeting to order for the evening session. A report of the secretary and treasurer was read, as was the report of the auditing committee. Both were unanimously accepted. The committee on resolutions reported and a resolution was adopted inviting the American Cotton Manufacturers' Asso-

RETIRING PRESIDENT F. B. GORDON.

ciation, the National Association of Cotton Manufacturers and the Textile Exhibitors' Association to meet in Atlanta in a joint convention at an early date. President Gordon then introduced as the speaker of the evening Stuart W. Cramer, of Charlotte, N. C., the retiring president of the American Cotton Manufacturers' Association, who discussed the new Duke warehouse plan and a number of its phases. Among other things he said:

"The number of bales of cotton consumed in the southern states during the year 1913, was 2,884,819 bales. It is a curious fact that instead of that cotton and the vast amount of money it represents standing for itself when it is probably the best collateral in the world, the mill men have been carrying it, instead of letting it carry itself. I do not think there is any question in the minds of those present that it has been a big act to do it. They have had to rush into the market in the fall or let the best pickings of cotton get away, and those who follow that course of buying have to borrow a great deal of money."

To secure that money it was stated, it would be necessary to go to banks outside of those with whom a regular balance was carried, and to get additional money in this manner was expensive. "But," he continued, "the trouble is not with the strong mills, it is with the weak mills. Some of you will say that you are not interested in this warehouse proposition because you have money enough to finance your requirements. I tell you, you are interested in this warehouse proposition. I don't care how much money you have got and I don't care how much your money costs you. If you think you can live of yourself and unto yourself you are mistaken. You cannot even name your own prices on your own goods. Your competitor, and your weak competitor at that, is the man that names your prices."

In taking up the Duke warehouse plan proper, Mr. Cramer outlined the entire scheme and how it came to be formulated. Briefly summarizing, the plan is to incorporate a strong warehouse company with a capital stock of approximately $5,000,000, confining its operation to a comparatively limited area, having a large cotton production and consumption, until the organization has been effected and question of details of administration and operation have been solved. Then if it seems advisable to increase its scope it can be done. The nucleus of the organization will consist of mill warehouses of the various cotton mills in the district, these warehouses to be acquired by the warehouse company on a twenty year lease. For working capital and for building and buying and establishing additional warehouses at suitable points, 7 per cent preferred stock will be issued. The lease on the mill warehouse is to be paid for with common stock surrenderable upon the termination of

HARRY L. WILLIAMS RE-ELECTED SEC. AND TREAS.

the lease. The basis of valuation for the mill warehouses, it is estimated, was approximately $5.00 per bale, that is a 500 bale warehouse would be valued at $2,500. An arrangement is to be made with the National City Bank or some of its subsidiary or allied companies whereby the warehouse company's receipt will be guaranteed. Mr. Cramer explained, however, that all these details were merely suggested details and that nothing definite had been determined nor would be determined until the organization proper had taken place. The powers of the committee, of which he is chairman, are only advisory and until the organization had further advanced, no definite details could be stated in connection with the scheme.

Under the head of new business came the suggestion to

revise the constitution and by-laws of the association so as to allow an associate membership to be composed of manufacturers and their salesmen, supply men, and others interested in industries allied to the business of the cotton manufacturer. The committee appointed to attend to this revision was Allen F. Johnson, president of the Exposition Cotton Mills; S. A. Carter, president of the Gate City Cotton Mills, and Harry L. Williams, the secretary and treasurer of the association.

The selection of the next convention city was left in the hands of the Executive Committee to be decided upon later. Fuller E. Callaway, the chairman of the Nominating Committee, then reported the following nominations:

For president, Allen F. Johnson, of Atlanta, Ga., president Exposition Cotton Mills.

For first vice-president, C. V. Truitt, of LaGrange, Ga., president Unity Cotton Mills.

For secretary and treasurer, Harry L. Williams, of Columbus, Ga., president Swift Mfg. Co.

These nominations were acted upon as a whole and all three men were unanimously elected to the positions named. The standing committee members and other vice-presidents of the association will be named by the new president at a meeting of the Executive Committee to be held at an early date. Final adjournment was then taken.

Among those present were W. J. Holden, Meritas Mills, Columbus, Ga.; George S. Hamberger, Hamberger Cotton Mills, Columbus, Ga.; Lee M. Jordan, Atlanta, Ga., the association attorney; W. M. Harris, Hampton Cotton Mills, Hampton, Ga.; Fuller E. Callaway, LaGrange, Ga., representing the Unity Cotton & Spinning Mills at LaGrange and the Manchester Cotton Mills at Manchester, Ga.; Thomas J. Callaway, Mistead Mfg. Co., Conyers, Ga.; B. L. Willingham, Piedmont Cotton Mills, Egan, Ga.; R. C. Freeman, president Dixie Cotton Mills, LaGrange, Ga.; Edward W. Swift, president Muskogee Mfg. Co., and Swift Spinning Mills, Columbus, Ga.; C. W. Chears, of Chattanooga, Tenn., the association traffic manager; Harry L. Williams, president Swift Mfg. Co., Columbus, Ga.; Fred B. Gordon, president Columbus Mfg. Co., Columbus, Ga.; Gordon A. Johnstone, agent Fulton Bag & Cotton Mills, Atlanta, Ga.; Capt. E. Lang, Lang Mfg. Co., West Point, Ga.; George H. Lanier, vice-president, representing the Shawmut Cotton Mills, the West Point Mfg. Co., the Riverdale Mills, and the Lanett Bleachery & Dye Works, West Point, Ga.; C. E. Pearce, superintendent Tallapoosa Mills, Tallapoosa, Ga.; George S. Harris, superintendent Lanett Cotton Mills, West Point, Ga.; Oscar Elsas, president Fulton Bag & Cotton Mills, Atlanta, Ga.; Allen F. Johnson, president Exposition Cotton Mills, Atlanta, Ga.; C. E. McLin, president Anchor Duck Mills, Rome, Ga.; C. B. Caperton, president Trion Co., Trion, Ga.; W. P. Wallace, Social Circle Cotton Mill Co., Social Circle, Ga.; Samuel A. Carter, president Gate City Cotton Mills, East Point, Ga.; H. P. Meikleham, agent, representing the Massachusetts Mills in Georgia and the Floyd Cotton Mills; G. B. Scott, president Scottdale Mills, Scottdale, Ga.; Howard P. Park, Park Cotton Mills, LaGrange, Ga.; J. D. Massey, treasurer Eagle & Phoenix Mills, Columbus, Ga.; E. Davis, president Paulding County Cotton Mfg. Co.; T. H. Rennie, president Pell City Cotton Mills, Pell City, Ala.; T. A. Robinson, Winder Cotton Mills, Winder, Ga.; R. T. Jones, Canton Cotton Mills, Canton, Ga.; F. T. Hardwick, Dalton, Ga.; L. L. Arnold, Editor of COTTON, Atlanta, Ga.; E. A. Thornwell, Westinghouse Elec. & Mfg. Co., Atlanta, Ga.; John S. Bleecker, president Columbus Power Co., Columbus, Ga.; R. E. Barnwell, manager Lockwood, Greene & Co., Atlanta, Ga.; Fred Houser, secretary, Atlanta Convention Bureau, Atlanta, Ga.; W. S. Witham, Atlanta, Ga.; John Bothamby, Farbwerke-Hoechst Co., Atlanta, Ga.; J. T. Rose, W. R. C. Smith Publishing Co., Atlanta, Ga.; A. Dickenson, Lockwood, Greene & Co., Atlanta, Ga.; Frank G. North, Arnold, Hoffman & Co., Inc., Atlanta, Ga.; Rogers Davis, representing Saco-Lowell Co.; A. G. McMillan; J. W. Horner, Ashworth Bros., Atlanta, Ga.; V. Q. Guion, Greenville, S. C., representing the Guion Starch Co.; William C. Massey, the official stenographer; W. T. Gayle, Atlanta, Ga.; L. E. Rast, Experiment, Ga.; A. B. Little, Atlanta, Ga.; Governor John Marshall Slaton, Atlanta, Ga.; Dr. K. G. Matheson, Georgia Institute of Technology, Atlanta, Ga.; Stuart W. Cramer, Charlotte, N. C., and James A. Emery, Washington, D. C., chief counsel for the National Association of Manufacturers.

THE NATIONAL COTTON CONFERENCE.

One of the most interesting cotton conventions of the month was the national conference of the cotton exchanges of the country at Augusta, Ga., on the 4th, 5th and 6th of May. Seventeen southern cotton exchanges and one northern exchange were represented at this conference.

Resolutions were passed recommending that all the exchanges represented adopt the government standard of grades, and also that the government adopt the international standard of grades as agreed upon in Liverpool and Washington last year.

The interest of the southern members was centered for some time in the question of arbitration on domestic deliveries. The following resolution was adopted by the committee:

"We recommend that the exchanges comprising this convention urge their members to incorporate in rules and regulations governing domestic deliveries that arbitration on grade should take place on upland cotton, either in Savannah or Augusta, and on western cotton at either New Orleans, Memphis or Dallas, the point of arbitration to be designated by the buyer."

Considerable time was devoted to the Lever cotton futures bill, and the conference finally agreed to ask Congress to make this bill the national law for cotton futures trading after incorporating thirteen changes of parts of the text.

Of the changes and alterations in the "Carolina Mill Rules," the principal revision was that which makes drafts payable when due instead of three days thereafter, and providing that mills bear the expense of re-weight of cotton in all instances where sellers' weights are found correct upon re-weight at the mills. Also this sentence was added to section 4 under the head of "Tare": *"Any gain in weight, however, in the cotton in question to be applied against a claim for excess tare."*

The amendments to the New England terms of buying and selling were considerably more extensive. These rules were adopted by the Arkwright Club, the New England Cotton Buyers' Association, and the Fall River Cotton Buyers' Association, and became effective September 1, 1912. These permit delivery differences to be the average differences between grades as now exist in the New Orleans, New York, Memphis and Augusta exchanges. An entirely new set of arbitration rules were also provided.

The proceedings of the conference are to be published and copies furnished to those interested. Frank H. Barrett, of Augusta, Ga., will have charge of this work.

After the adjournment the National Association of Cotton Exchanges was organized. W. C. Lawson was chosen president and Frank H. Barrett, vice-president. The executive board of nine will be selected for the first year by the president. The following were enrolled as members of the association: The Mobile, Meridian, Augusta, New Orleans, New York, Selma, Little Rock, Savannah, Birmingham, Dallas, Montgomery, San Antonio and Waco exchanges and the Texas and Mississippi Cotton Associations.

National Association of Hosiery and Underwear Manufacturers.

The tenth annual convention of the National Association of Hosiery and Underwear Manufacturers opened on the morning of Tuesday, May 12th, at Philadelphia, with an unusually large number of knitters in attendance. The machinery exhibition opened one day earlier and was in full swing when the association convened.

President Charles E. Leippe occupied the chair and after the invocation he introduced Mayor Rudolph Blankenburg, who welcomed the association to Philadelphia. Immediately following the Mayor's address Hon. J. Hampton Moore, member of Congress from the third district of Pennsylvania, delivered an able address entitled "Too Much Tinkering," in which he condemned the tendency of the times to legislate the business man out of existence.

Edward J. Cattell followed in a more optimistic vein, illustrating his points by telling stories which were received by much laughter and applause. President Leippe then delivered his annual address. After the appointment of some committees adjournment was taken.

On Wednesday morning the session did not open until 10:30, as it was somewhat difficult to get the members away from the interesting machinery exhibits and anyway, 10 o'clock is rather early to expect men attending a convention to get breakfast and be ready for business. The first address was by John P. Wood, who took for his subject "Sane Legislation." His remarks were received with much interest by the large number of members present. He was followed by Arthur T. Bradlee, who spoke extemporaneously on the conditioning of yarn and cloth, a subject on which he is a well known authority.

At the conclusion of Mr. Bradlee's address, President Leippe introduced Calvin M. Smyth, president of the National Dry Goods Association, who spoke on the relation of the jobber to dry goods distribution. At the suggestion in the report of the nominating committee the entire list of officers were re-elected for another year. This was the first time a president of the association had been elected to a third successive year and President Leippe declared that he fully appreciated the honor. The last business at this session was the report of Fred W. Simons, the able chairman of the committee on arbitration. The session then adjourned.

Wednesday night at 8 o'clock was the time scheduled for the association smoker in the Scottish Rite Building on Broad Street. It was after 8:30 when the 700 odd members, exhibitors and guests were seated. Everyone present received a box containing cigars, pipe, tobacco and a souvenir match holder and ash tray. An elaborate menu was provided and the vaudeville acts were loudly applauded.

The morning session on Thursday had a somewhat smaller attendance than the previous ones, but much interest was shown in the addresses. The first speaker was C. A. Mann, secretary of the American Society for Thrift of Chicago. He was followed by H. A. Culbertson, on "Trade Marks and Their Protection." Secretary C. B. Carter then read his annual report. The next address was entitled "Operating Costs and Economies," by Clyde E. Murray of New York City. Mr. Murray was followed by J. H. Tregoe, of the National Association of Credit Men, who spoke on "The Economy of Distribution as Relates to Sound Credits." Secretary Carter then read the report of the Board of Didectors. A message was read from Senator Bois Penrose regreting his inability to be present. The following resolutions were then unanimously adopted:

"*Whereas.* We have listened to a very able address by J. P. Wood on standardization of safeguards of machinery, etc.; therefore be it

"RESOLVED, That the president appoint a committee of three members of this association to work in conjunction with a similar committee of the Pennsylvania Manufacturers' Association to devise and recommend such safeguards to the members of this association that will lessen accidents and preserve human life.

"*Whereas,* The investigations that have been authorized by Congress and which are being made under the direction of the Department of Commerce at Washington as to the cost of manufacture in connection with present business conditions, as the basis for determining the defects of the Underwood-Simmons tariff bill in its relation to manufacturing interests, would not at this time be a true reflection of the actual results of the new tariff bill; therefore be it

"RESOLVED, That we recommend to the Department of Commerce that these investigations be postponed until at least a year after the Underwood-Simmons bill became a law, for the reason that practically all manufacturers are still operating on orders taken prior to the passage of the new bill, hence the adverse effects cannot be felt until old orders have been exhausted."

The meeting then adjourned although many members remained over another day or so visiting business connections and attending the exhibit.

PRESIDENT'S ADDRESS.

The knitting industry seems to me at this time to be in a state of evolution, and the manufacturer hardly knows from day to day where he stands. I hardly know of an industry which has undergone the changes in a few years that the fine seamless line of hosiery has. It is only a few years since the finest seamless hose was a 204 needle, and from that it jumped to 240 needles. The ladies' hose had a two-inch welt, and a single 60 heel and toe splicer. The next evolution was a re-inforced garter top, the next a four-ply heel and toe, next a six-inch welt, then a high spliced heel and double sole, next an entire silk hose, next the silk boot, next genuine silk plaited, then a wood fiber silk, next

a wood fiber silk plaited, and next a genuine silk and wood fiber mixed. What next? Heaven only knows.

A great many manufacturers have spent about all their earnings buying new machinery so as to keep in the procession, and have introduced a system to lessen the waste, and bring their business up to a high state of efficiency, so as to permit them, if possible, to make only a fair profit upon the capital invested in their business. There has been no time in the history of the hosiery business when the changes were so rapid, and machinery became antiquated so quickly. Every one of the many changes enumerated above have increased the value of the hosiery produced.

I say, and without fear of contradiction, that the hosiery made in America, by Americans, is of better value for the money than hosiery made in any other part of the world, and more than 95 per cent of the hosiery made in the United States is consumed here. Up to less than a year ago the business of all hosiery manufacturers was all that could be wished for. Every mill was running full tilt, not an idle machine anywhere. The employees working the full limit of time, at the highest wages paid in the world for hosiery workers, employees earning from $8 to $40 per week, with a range in many mills, of $12 to $18 for girls, and from $16 to $40 for men. These were American wages paid to American working people, who live like Americans, and who have more of the real comforts of life than the working people in any other part of the world. But, within one year or a little more, there came into power a new party in our national Government, whose policies were not the policies of the old party. The old party's policy was the American market for the Americans. There is no other market in the world for our own products so good as our own market. Why destroy that which you have, and which is your heritage, and hand it over to aliens, who have no interest whatever in us, except what they can get out of us, and give us as little as possible in return.

I almost imagine I can hear someone say—Mr. President, you are a pessimist. Gentlemen, this is neither time for pessimism nor optimism, this is the time to tell the truth. We have real conditions confronting us, and not imaginary ones. The purchasing power of the American wage-earner has not increased one tittle since the present tariff has gone into effect, but on the other hand with thousands of American employees entirely out of work, and others on short time, the purchasing power has decreased considerably more than the majority of pessimists would be willing to admit. At the rate that foreign hosiery and other knit goods have been dumped on the American market within the last three months, it will be only a matter of a short while before our mills will be half, or more than half idle. Indeed, some of our mills are running as little as three days a week, others four and five, and I am sure very few, if any, are running full time. Who is benefited by this condition—it is the foreign manufacturer and the importer. What interest do American manufacturers and American employees have in the goods made abroad? None. Every pair of stockings that is imported means just that number less for American employees to make, just that much less bread and butter for you, me and our employees.

Abraham Lincoln has so ably said, "I do not know much about the tariff, but I do know when we buy goods abroad we get the goods and they get our money, but when we buy our goods at home we get the goods and the money also." Now if the American consumer was paying less for the imported hosiery today than he paid under the higher tariff, we could not complain justly, because the great American public would be benefited by the reduction in the tariff, but there has been no reduction to the consumer. To sum it up, we all get something—the American manufacturer loses the business, the American working man his means of earning a livelihood, the American Government the tariff or revenue, and the foreign manufacturer is happy.

In the month of February, 1914, the importation of hosiery was 40½ per cent greater than in 1913. All other knit goods imports outside of hosiery were 67.7 per cent greater than in 1913. In the month of March, 1914, the importation of hosiery was 72 4/5 per cent greater than in 1913, and all other knit goods 71.9 per cent greater than in 1913. Every month shows an increase, and this is just the beginning. Someone may say that hosiery is the only thing being hit—not so. Let us compare some of the other textiles. Cotton cloth increased in February, 1914, from $727,121 to $1,454,439, or 100 per cent. In March, from $721,902 to $1,402,071, or 94 per cent; woolen dress goods in

CHARLES E. LEIPPE, RE-ELECTED PRESIDENT.

February from $262,938 to $782,121, or 197 per cent; March from $225,973 to $740,928, or 227 per cent; woolen cloths under free wool, February, 1913, $464,742 to $1,564,197 in 1914, or 236 per cent; March, 1913, $328,974, to $1,396,910 in 1914, or 324 per cent increase.

This is not hearsay; these are Government statistics. Now, gentlemen, these are conditions. I have given them to you quite briefly. You might ask me what is the remedy. I would say this: Where is the man of large or small business interests who would hand over his business to an inexperienced ward politician, who knows nothing more or cares less about your business interests than the man in the moon. It is the business of every business man and every manufacturer to get into politics, nominate and elect such men as will look after your interests and the interests of your employees. There is no division between the manufacturer and his employees—they are paramount, the one cannot succeed without the other. If I have nothing to do, my employees have nothing to do either.

We have a few more days before the primary election

here in Pennsylvania. When you get home, take off your coats, make it your business to see that only such men are nominated for office as will adequately represent you when they get into power. The business interests have stood aloof too long. We sowed to the wind and are now reaping the whirlwind. Gentlemen, equip yourselves like men. Where your present representatives are truly your representatives, tell them so, and help them to a renomination and election, but where they have misrepresented you and your interests, make it your business to see that they stay at home.

Gentlemen, I need not tell you who looked after your interests in the United States Senate for nearly 20 years, you know as well as I can tell you. Senator Penrose, I say, without fear of truthful contradiction, is the best business Senator Pennsylvania has ever had, and we should say as the Master of old, "Well done, good and faithful servant: thou hast been faithful over a few things, I will make thee ruler over many things."

TOO MUCH TINKERING.

BY HON. J. HAMPTON MOORE.

Mr. Moore said in part:

During recent years men who have spent their money erecting mills and employing labor seem to have been the targets for most everyone who had a law to enact or some additional responsibility to impose. Laws are presumed to be enacted in the interest of the people of the land generally, and they are supposed to encourage trade and commerce, but to a certain extent the reverse has been the order during the last few years. While laws may be well intended, there has been a veritable plethora of them, and the effect of them all has been, so far as industrial pursuits are concerned, to check business operations.

There have been agitations of all kinds which have brought this situation about. It is easy to get a few men assembled upon a street corner to talk about the inequalities that are alleged to prevail and to have that cry taken up in the newspapers and have it then thumped against the Legislature of the state or pounded into the ears of Congressmen until finally there is a yielding, a giving away, and a passage of laws to which you must adjust yourselves. I suppose it is because I have been thinking a little bit on this line that I suggested, if I talked at all today, that I should talk on "Too Much Tinkering," not that you in your individual business are doing too much tinkering, or that any man hammering upon a boiler plate is doing too much tinkering, nor that anyone running a loom and making the pleasant movement and the noise and the whirr of the machinery is doing too much tinkering, but that others who have no fixed occupation in industry, who have no business responsibility, are doing too much tinkering with you.

I have had occasion to observe what state Legislatures do, and some of them, by reason of agitations that are started, that are more insidious, that are more persistent, that are more effective apparently than any that you may start to sustain and hold your trade and your business, which, having their effect upon the Legislatures, have led to the passage of all sorts of laws, from the removal of drinking cups on the Fourth of July from excursion trains carrying thousands of thirsty children to Atlantic City, up to the Seven Sisters enactments passed in the state of New Jersey, which mean that if you attempt to establish by agreement an understanding with your fellow that you shall work together in a business enterprise you shall go to jail.

Now, the most recent national legislation on these lines is the anti-trust legislation and the trade commission legislation which we are expected to pass in Congress, and, if this Congress continues long enough, you are going to get, in a national way, much of the kind of legislation that has been tried out by state Legislatures in New Jersey and elsewhere. Already legislation has been enacted in Washington that it seems to me, is in the line of too much tinkering—and I am not speaking now of the tariff. The agents of the Department of Commerce are visiting many of you; some of them may be in the room, I dont know—may be in consultation with you now or before your convention is over, to ask you to tell the Secretary of Commerce everything you know about your own business and everything you do to make yourself successful in competition with your fellow man; in other words, to lay bare the fruits of all your years of study and of toil and to give up to the Government presumably, whether friendly or hostile, every secret avenue by which you have made yourself successful. In other words, if your brains have been stronger and better and more effective than the brains of the man next door to you, give away your brains in order that the other fellow may come up even with you.

With respect to this kind of legislation, I want to say that it smacks of too much tinkering because it comes in the form of a rider to an appropriation bill. I wish you men would understand what it means to sit down in a great national body and try to vote for a bill to carry along the courts of the country and to pay the salaries of the criers, the clerks and the judges, and then have come secretly in that bill somewhere a provision in one paragraph which gives to the Secretary of the Department of Commerce the right to enter any business establishment in the United States and force the proprietor thereof to get down his books and pay for the clerk hire in order to tell that Secretary of Commerce all he knows about his business; and yet the rider, the provision which is now drawn to your attention, came in an appropriation bill in just that way.

Some time ago we were all voting on a post office appropriation bill, a bill to pay the salaries of the letter carriers and the clerks and transact the ordinary business of the Government in conducting a post office, and at the bottom of that bill, under this new system, this short cut system was a provision to take over all the telegraph and telephone lines of this country and practically to put the railroads under the control of the Government. Now there is no chance for argument under such conditions, very little opportunity for discussion; these things came as suddenly as a thunderbolt out of a clear sky, and we must vote for them or stop the post office business, or vote against them and then vote against the appropriation to pay the letter carriers and the clerks and to conduct the post office— a very embarrassing position for one of your Representatives or all of your Representatives who may not agree with that system, to be placed in. And yet that is one method by which new legislation is enacted today and by which the great problems that have puzzled the minds of learned men for generations are suddenly, and without warning, thrust upon the people.

Now, I have got to make a train, and I am beginning to make a speech, and I am going to stop, but I want to say this, there are very few men in the United States Congress who will stand up today for the American business man. We were told, notwithstanding striking illustrations to the

contrary, throughout the whole of the tariff discussion, that the burden must be lifted from the backs of the poor because you had been charging too much for hosiery. And while the cost of living has been going up higher and higher, and while you manufacturers and that vast number of worthy people who are your employees are paying more and more for food supplies, meat and potatoes, products of the farm, I don't observe, except in certain fashionable lines where they wear fiber silk stockings, more for show than for anything else, I don't observe that the people to whom you are paying higher prices for food are paying any more for hosiery than they did before. I observe this, that while you and the people dependent upon you for their wages are buying three meals a day and paying for them as much as they ever did, and that happens on every one of the 365 days of the year, the average fellow out there who is getting that food ready, is beginning now to ride in his automobile, but who doesn't buy more than half a dozen pair of socks a year at 25 cents a pair. If he pays that, you are giving a pretty fair return in what you buy from him for what he buys from you.

The cost of living has gone down in the manufacturing and industrial lines. Check it up and you will find that that statement is correct. It costs less today for hosiery and knit goods and underwear than it did when your dear old grandmother had to work them out on the spinning wheel, and you flood the country with them and everybody can get them; they are as common and almost as free as air. That cost of living has gone down while you have been paying a very large proportion of the taxes and carrying a great deal of the burden of Government, but the cost of living which comes in the form of the food supply has gone up and you must pay for that and prepare to meet that increase, because it is not likely to go down while the people increase in numbers and the cattle decrease upon the plains.

The very Department of Commerce, created as the Department of Commerce and Labor, was formed for the purpose of fostering, promoting and developing trade. It was not created for the purpose of hindering trade. It was not created for the purpose of embarrassing every man who invests his money in trade. It was created to develop, to help, to foster, to assist trade. You, gentlemen, think it over in the course of your business sessions. Think of the troubles that have beset you and the troubles to come, and you will make up your minds, perhaps, that the business man's voice in politics ought to be heard a little oftener, the business man's voice ought to come to Washington and to the state Legislature in the form, not only of resolutions, but personally and by direct contact, this is in the interests of business and in the interests of labor as well.

REPORT ON ARBITRATION.

BY FRED W. SIMONS, CHAIRMAN ARBITRATION COMMITTEE.

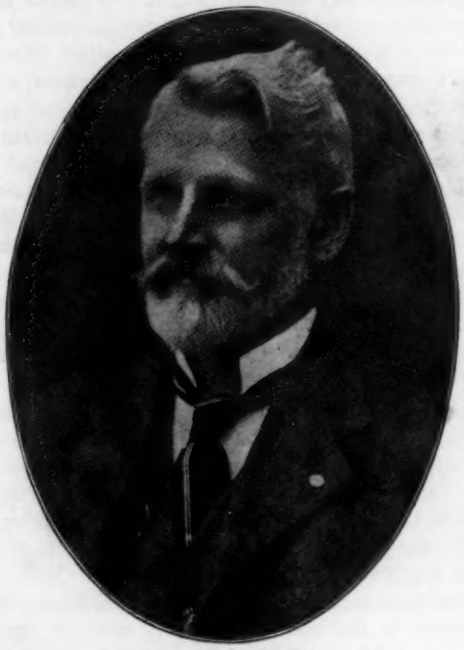
In preparing this little handbook as a guide to arbitration the committee has in mind the elimination of unnecessary formality and "red tape," which on the face of it is one of the principal objections to legal proceedings.

Such brief rules and regulations as are herein laid down may for the most part be regarded as suggestive and tentative. They are designed to simplify proceedings rather than to impose restrictions, and enable arbitrators to satisfy themselves before making awards, that they have secured all available evidence and otherwise conducted their proceedings in conformity with the demands of equity.

Arbitration tribunals, composed of business men, are not competent to pass upon disputes where the litigants demand settlement upon a legal basis only. Their proper jurisdiction is limited to cases in which both parties seek settlement upon a basis of law, and prefer arbitration to legal proceedings as a means to that end.

Independent of the fact that the very purpose of arbitration is to avoid the necessity for appealing to the courts it seems doubtful if the cause of arbitration can be promoted by the enactment of law.

In some states (notably New York) laws have been passed ostensibly for the purpose of encouraging the practice of arbitration and which are popularly supposed to invest arbitration findings with the force of law court decisions. At first glance this appears to be a distinct advantage, but when we take into consideration the fact that in order to secure this advantage arbitration proceedings must be conducted in conformity with code provisions prescribed



FRED W. SIMONS.

by the law, and that the various states do not have uniform laws, its merits are not so apparent.

On the contrary, it will be seen to complicate the work of arbitrators by compelling the observance of formalities, and militate against the adoption by trade organizations throughout the country of simple and uniform methods of conducting arbitration proceedings.

Moreover, a careful reading of the law of arbitration of the state of New York fails to disclose that it really does render the acceptance of arbitration findings more obligatory, even when the proceedings are conducted in conformity with it. On the contrary, it provides that arbitration findings must be validated by orders of court before they become legal obligations.

It paves the way for review by the courts of both arbitration proceedings and arbitration findings. It provides that motion to vacate an award may be made by either party to the submission and makes it mandatory upon the court

to issue an order to vacate in certain specified cases; as for instance, where the arbitrators had "exceeded their power" or shown "evident partiality" or "any other misbehavior by which the rights of any party had been prejudiced." How could a court pass upon such averments without investigating both the arbitration proceedings and the merits of the dispute?

The net result of the law is to render arbitration awards binding and final only when both parties to the submission choose to accept them. When we take into consideration also the fact that the presence of this law on the statute book strips an agreement to arbitrate and abide by the results of its character as a contract which might be sued out on its own merits, we feel tempted to ask if our New York friends have not been consulting their lawyers as to the best way to dispense with their services.

Undoubtedly, the chief obstacles to the successful practice of arbitration heretofore encountered have been the difficulty of securing satisfactory arbitrators and the dissatisfaction with awards which may be fairly charged to the generally practiced method of selecting them.

The practice has been for each of the parties to a dispute to select one arbitrator and the two so selected a third, but there is no good reason why the parties to a dispute should choose the arbitrators and every reason why they should not. Why should they desire to do so except in anticipation of favors to come? It is quite certain that if they carried their troubles to court they would not be permitted to select the trial judges; and that for good and sufficient reasons which are just as applicable to the selection of arbitrators as to the selection of judges of the court.

The competence of arbitrators is dependent not only upon their integrity, but also upon their special knowledge and training. A dispute between a manufacturer and a merchant might very well be decided by a court composed of manufacturers and merchants.

It is obvious, therefore, that if the various trade organizations will establish arbitration bureaus and cooperate with each other in providing arbitrators, they will experience no difficulty in making up competent unbiased tribunals and the business man who would be unwilling to submit his case to a tribunal as provided is not looking for a square deal, but for a fight.

If arbitration is to supercede litigation to any appreciable extent in the business world it must be based upon whatever confidence the business world has in its own integrity. That a sufficient basis of confidence exists will not be doubted save by the envious and the pessimistic.

As already intimated, the rules and regulations appended hereto are by no means presented as being ideal and complete, but we hope they will serve as a practical working basis until they can be revised in the light of a more mature experience.

The officers, directors and advisory board of the National Association of Hosiery and Underwear Manufacturers shall constitute its bureau of arbitration. They shall have a chairman from their own number and the secretary of the association shall be the secretary of the bureau.

It shall be the duty of the chairman of the bureau to appoint all arbitrators, and in so doing he shall be careful to ascertain as far as practicable that neither close personal friendship nor animosity exists between any of his appointees or either of the parties to the dispute. He shall not be confined in selecting arbitrators to the membership of the bureau.

All submissions must be signed by both parties to the dispute and must stipulate that they agree to submit their differences to the Bureau of Arbitration of The Hosiery and Underwear Manufacturers' Association for adjustment and that they will accept the findings of the bureau as final and binding and pay the costs incurred as the arbitrators may direct.

All findings and awards must be typewritten in triplicate, signed by the arbitrators individually and countersigned on behalf of the bureau by its chairman. One copy shall be forwarded to each of the disputants and one placed on file by the bureau.

Arbitrators shall serve without compensation, but shall be reimbursed for all necessary personal expenses incurred while attending to the tasks assigned them. (Note.—The committee recognizes that "the laborer is worthy of his hire" but hopes that those appointed to arbitrate will be willing to sacrifice their time and labor in the interests of progress, at least until the value of arbitration is more thoroughly demonstrated and the practice of it firmly esetablished).

At the time of submission each of the parties to the dispute shall pay to the bureau a submission fee of $20. No further charges shall be made excepting for the actual and necessary expenses incurred in properly conducting the arbitration proceedings. Such expenses shall be assessed against either or both of the disputants as the arbitrators may determine.

All cases should be heard and disposed of as speedily as thorough and careful consideration of them will permit. This will generally be to the satisfaction of all parties concerned and will help the cause of arbitration. Many cases may be satisfactorily adjudicated without the taking of personal (oral) testimony. When this is practicable it will be to the convenience of all parties concerned and will save time and money for the disputants, particularly when they reside at a distance from the offices of the association. In such cases the arbitrators should require each of the parties to submit a written statement of their case and claims, together with all documents relating thereto—correspondence, orders, invoices, etc.

When oral testimony is received, it should be taken by a stenographer, transcribed and placed with the other documentary evidence for reference when the arbitrators are giving final consideration to the case.

Care should be taken that any averments by either of the parties and deemed by the arbitrators to affect the merits of the case, should be brought to the notice of the adverse party and an opportunity given to the latter to make reply thereto. This, of course, is simply stating one of the first principles of equity, and it is only noted here because first principles are sometimes lost sight of.

Make clear cut, positive and definite decisions, but be sure they are sufficiently comprehensive to cover all matters in dispute and make final disposition of them. Don't make a decision in the nature of a compromise for the sake of conciliation, but don't be afraid to make such a decision when the equities of the case demand it. In many cases, perhaps in a majority of cases, neither all the right nor all the wrong is on one side, and in such cases a just decision and award must necessarily be somewhat in the nature of a compromise. Remember that you are sitting as a court of equity, not as a court of law.

National Association of Cotton Manufacturers.

One of the interesting events in connection with the Fourth National Textile Exhibit at Boston was the holding of the annual spring meeting in the same building by the National Association of Cotton Manufacturers. The four sessions were comparatively well attended, considering the very interesting machinery exhibit that was taking place in other parts of the building, and which tended to attract the mill men away from the meeting hall. Many of the papers read at these meetings were of a technical nature but all were intensely interesting in their special lines and were well received by the members. From the address of welcome to the association by his excellency Governor David I. Walsh, and the response by R. M. Miller, Jr., of Charlotte, N. C., to the election of officers at the end of the fourth session, was one continuous series of interesting addresses. While it is impossible within the limited space of this issue to reproduce all the papers, sketches from several follow herewith and others are located elsewhere in their special departments.

The new officers elected were as follows:

President, Albert Greene Duncan.

Vice-Presidents, William M. Butler, of New Bedford, and Grosvenor Ely, of Jewett City, Conn.

Directors to serve three years were Philip Dana, of Westbrook, Maine; Frank Shove, of Fall River; and Wm. A. Mitchell, of Lowell.

John Sullivan, of New Bedford, was elected director for two years, and Alexander Makepeace, of Fall River, a director for one year.

The Association medal was awarded to Arthur T. Bradlee for his investigation upon the effects of moisture in the testing of cotton yarns and fabrics. Stuart W. Cramer, the retiring president of the American Cotton Manufacturers Association, and chairman of the National Association Medal Committee, made the award.

PRESIDENT GREENE'S ADDRESS.

We are here today for our ninety-sixth meeting. As we survey the events of the past few months we are not over hopeful. A tariff bill was enacted last fall, the last provision of which, so far as textiles are concerned, went into effect January 1, with the reduction of the duty on wool goods. This readjustment was a most serious one with the woolen and worsted mills of the country. What I fear most is that the full effect of the tariff has not been felt. The cotton manufacturers perhaps have not been seriously disturbed in most lines by direct competition from the foreign manufacturers. However, on fine goods, particularly of a fancy nature, competition has been in evidence, and yet the cotton manufacturers, as a whole, are not as alarmed as those in the other large branches of the textile industry. This is an ad valorem tariff, and with prices fairly high as they are today, the margin of protection is greater than it will be later when the industry suffers a possible severe setback and foreign prices fall to a lower level.

One step forward has been taken during the past few months in the organization of the Textile Bureau. The primary object of this is to protect the interests of the domestic manufacturer in all customs matters, and particularly to assist in preventing undervaluations and the fraudulent practices of some importers. In this we are not working contrary to the national government or any of its departments or officials, but are only cooperating in the enforcement of the laws of the land to enable the honest importers to do a legitimate business, and to see that the side of the domestic textile manufacturers is fully presented in important cases before the various boards and officials of the treasury department and the courts of the land. Heretofore, manufacturers of the country have not felt this necessary, but with a very radical change in the method of levying duties and the change in the administration, it has seemed important that the case of the domestic manufacturer should be presented as fairly and ably as that of the importer who necessarily is working in the interests of the foreign manufacturer. The work of the Textile Bureau has just started, and yet we hope much can be accomplished even this first year for the industry.

EDWIN FARNHAM GREENE, THE RETIRING PRESIDENT.

The changes in the tariff, as I have just stated, are likely to effect the textile industry, but apart from this the prosperity of the cotton mills is dependent to a very large degree on the general business of the country, and this seems likely to continue in a very unsatisfactory way unless some of the momentous questions that are now being discussed by Congress and the Interstate Commerce Commission are decided wisely. Congress at this very time is considering corporation bills which directly affect us, and unless sane legislation is enacted serious injury is bound to result to the general business of the country. It seems to be the concensus of opinion that the increase in freight rates demanded by the railroads is a necessary first step in the restoration of public confidence.

Moreover, there are several labor bills being considered by Congress. While we in New England cannot help feeling that the textile industry should in the long run be put on the same basis as regards labor legislation, nevertheless the Democratic party seems to be departing strangely from its ideals of state rights and individual liberty in the pater-

nalistic program of the present day with its policy of uniform laws.

One of the most serious problems which we manufacturers have to face is the labor problem. It is not merely a question of wages or hours of work. A mere shortening of hours will not accomplish what the wage earners themselves really seek. It is a much larger question. As I have frequently stated, we all believe in higher wages for the textile workers. The present schedule of wages should be maintained, but if the government seeks to impose unjust and unfair burdens, labor must bear its fair share of the load. We should consider very seriously any suggestion for a further decrease in hours of labor. We have been talking of the high cost of living for a great many years and one of the immediate causes of this is the shortening of hours and the consequent increase in the cost of production. There is a reasonable limit. We are all happier and after all better off with hard work, and so long as the health of the textile worker is not impaired and so long as sufficient time is allowed for recreation and improvement, the people of this country are better off at work than with too much idle time on their hands. I, for one, believe that 54 hours of work in the week cannot possibly do anyone an injury,—even most boys and girls of fourteen and fifteen years of age, and certainly this weekly schedule of hours allows a good deal of time for other worthy pursuits. We are now forced to compete with foreign operatives working a longer number of hours than we do here in Massachusetts and at very much lower wages. Any further curtailment in hours must inevitably stand in the way of an increase in weekly wages, and the textile workers themselves and New England as a whole would be better off to work at least fifty-four hours a week and, when conditions warrant, secure an increase in wages rather than work for the same weekly wages and shorter hours.

It is perhaps, a sign of the times that one of the largest carpet mills in this country recently reduced the wages of all their operatives, including foremen, 10 per cent. I sincerely hope this will not prove necessary throughout the industry but it behooves us to consider carefully whether we are in a position to compete with the English, French and German mills if any further burdens of restrictive legislation such as shorter hours, are imposed.

While the cotton industry is thoroughly individualistic and highly competitive, in order to meet the present conditions there must be a greater degree of cooperation. The results so far are discouraging to those who have tried to accomplish anything along this line but there are some encouraging signs such as the establishment of the Textile Bureau.

EFFICIENCY AND COST IN BUSINESS.

BY JOHN S. LAWRENCE.

Publicity, and investigations by the public for the public, have unearthed inefficiencies of system and officials in so many corporations, even among those who were thought the standard of perfection, that this policy is bound to spread and bring about investigations of our problems, which will create new laws if those in effect at present do not seem to properly protect the public interest—in fact, hearings on this subject are now being held in Washington.

The functions of stock carrying, service, local acquaintance and credit are necessary to any nationally distributed line of goods, and if efficiently conducted, must be profitable. In these days of quick turnover those who have stock ready to deliver enjoy great advantages.

I am anxious to discuss three phases of the wholesale problem:

First—The advantages to the wholesaler of modern accounting, or, as it is sometimes called, "fact finding."

Second—The temptation to overdo private branding.

Third—The better education of sales organizations.

First. Buying expense, salaries, traveling, advertising, delivery, rent, interest, freight, warehousing, insurance, depreciation and bad debts can readily be kept separate, for the business as a whole or even as applied to departments, which are logically defined according to the character of the goods handled. Then each department can easily be analyzed on its own merits, so that by judicious combination of separate costs any sales may be readily analyzed in detail in such a way as would indicate the net profit of the transaction. Special test cases might well be thus analyzed, as is the practice in many factories.

I believe interesting information may be gained by those who thus study their business. The difference between gross and net profits of the various classes of goods and the various lines offered by different manufacturers would show some remarkable comparisons, and indicate the way to affect economies which today may not be thoroughly realized.

Such a system might show interesting contrasts between large volume of orders at low gross profit over lesser volume at greater profit. It might also show that a general overhead charge tends to increase the business that costs most to get and decrease that which is most easily reached; that direct shipment from mill to dealer saves freight, rehandling and warehousing, thereby permitting lower prices and greater real profit. It would be interesting to see laboratory tests of costs of securing business by salesmen, advertising and circularizing, in comparison of costs to sales.

A system of accounting which produces the real facts simplifies the work of the chief executive by thoroughly posting his department managers, for it enables each to more intelligently operate his department. It develops new ideas of service and such a cost system should, and I believe can be made to work automatically for or against department profits in real relation to their actual cost.

Second. Due to the very serious competition among wholesalers some twenty years ago, the idea of private branding merchandise was evolved. Price cutting and ruinous competition was avoided, credits improved and the industry prospered. Goods disguised under private tickets and markings were less directly competitive than was the case when they were all under one mill brand.

There may develop dangers to this situation. There is a temptation to overdo a good thing; luxuries and unreasonable sales energy, advertising, traveling, commission, etc., may make it unprofitable to offer quality equal to the mill brand, with the resulting temptation to reduce the quality of goods. Thus we reach the problem of High Quality + Small Sales Energy vs. Lower Quality + Greater Sales Energy and the extremes of one are as disastrous as those of the other.

Third. Little is being done to educate the dry goods salesman. The older men have their methods of doing business, and the younger men are turned loose to pick up what they can and to accustom themselves to being told "No goods wanted today." If you want a typewriter, a salesman is sent who knows the entire construction and

operation of his and competitive machines, having been trained in the factory. An efficient school for education of its salesmen is maintained by the National Cash Register Company of Dayton, Ohio. The Dennison Manufacturing Company requires each salesman to spend 20 per cent of his time at the factory.

I appreciate the difficulty of educating a general salesman as to all the merchandise he carries; this would probably have to be done to a great extent by correspondence, posting him as to the selling points of his merchandise. The bulk of these selling points must be prepared and vouched for by the manufacturer of the goods. Is it not possible for salesmen to come in closer touch with the manufacturer and become better posted on the articles they sell, so as to make it less necessary to employ specialty men who must of necessity add to the selling cost?

A general salesman may argue that certain goods are desirable because of their brilliant lustre, while a factory-trained salesman might show that extreme lustre weakens the fabric. Would it be feasible for the salesman, when at headquarters, to receive direct education from the manufacturers of the merchandise they sell—such a condition should be welcomed by both manufacturer and wholesaler as beneficial to each.

It would be profitable to hear thoroughly discussed what effect, if any, cost systems, private branding, and education of salesmen on the part of the wholesaler and retailer have on the growth of systems of more direct selling.

With the stimulus of necessity caused by lack of profit, publicity and the clamor against the high cost of distribution, let us work closer together, that the manufacturer may not invade the territory of the distributor nor the distributor that of the manufacturer. There is need for both—neither trying to be other than what he really is—the efficient manufacturer and the efficient distributor, cooperating for the good of each and that of the community which they serve.

RECENT DEVELOPMENTS IN COTTON MILL LIGHTING.

BY G. H. STICKNEY, VICE-PRESIDENT ILLUMINATING ENGINEERING SOCIETY.

The recent history of incandescent lamp manufacture reveals two very conspicuous advances which have greatly increased the economic possibilities of good artificial illumination in cotton mills. I refer to (a) the use of the tungsten as a filament material and (b) the development of the wire drawing method of forming the tungsten filaments.

The tungsten filament doubled the efficiency of the preceding incandescent lamps, and increased the efficiency two and one-half to three times over that of the carbon lamps, which were in most common use. This meant that two and one-half to three times as much light as formerly could be produced from the lighting dynamo, without any considerable increase in investment.

Then came the second advance. Long investigation finally solved the problem of producing tungsten in a ductile form, so that it could be drawn into a wire somewhat after the manner of other ductile metals. This immediately resulted in the strengthening of the lamps so that they would withstand reasonable usage and handling such as would be encountered in a mill.

Besides the two important developments already mentioned, minor improvements have continually followed each other in rapid succession. Proportions of lamp parts have been changed; different materials have been tried in various parts of the lamp; and thousands of variations in methods and processes have been tried out.

Not the least of the advantages which have accrued from these many improvements has been the reduction in costs and the consequent lowering of selling prices.

One of the great advantages of the modern incandescent lamp is the great variety of reflecting devices available, by the use of which the light may be distributed to meet almost any conceivable requirement. The reflector may perform three distinct functions, besides serving as a protection for the lamp. First, it may concentrate a large portion of the light on the working surfaces, where a high intensity is needed. Second, it may keep the direct light out of the eyes, thus avoiding the glare which is encountered with any of the efficient light sources, and third, it may help diffuse the light, softening shadows.

While glass reflectors are occasionally used to good advantage in cotton mills, the usual practice is to use steel. Two types of reflecting surfaces are in common use: namely, aluminum and porcelain enamel.

The accumulation of dust and dirt on lamps and reflectors detracts considerably from the light furnished. Losses as high as 50 per cent have been shown by tests under severe conditions. It is therefore important that the light-transmitting and reflecting surfaces be kept reasonably clean. Since the depreciation is so slow, its magnitude is seldom realized and cannot be taken care of by haphazard cleaning. The only real way to assure proper illumination performance is to establish a systematic arrangement for periodic cleaning, and this can be done at a surprisingly small cost.

In industrial lighting there are four principal methods of lighting: namely, general illumination, localized illumination, combined general and localized illumination, and localized-general illumination or group lighting.

General illumination represents the practice where an attempt is made to distribute an even intensity of illumination throughout an area. It originated with the application of arc lamps to interior lighting, but is now frequently applied with the higher power incandescent lamps.

Localized illumination applies to the practice of locating small lamps near the surfaces to be lighted. This practice was common with carbon incandescent lamps.

Combined general and localized illumination, as its name implies, is a combination of the two preceding types of practice. Usually a moderate general illumination is supplemented by higher intensity of localized illumination at particular points.

Localized-general illumination or group lighting is an intermediate practice between general and localized lighting made possible by the range of intermediate sized Mazda or tungsten lamps. Instead of trying to produce an even intensity throughout the room, the lighting is arranged so as to produce maximum intensities at the most important points, at the same time avoiding objectionable shadows. In other words, the lighting units are located with reference to processes and machinery.

All of these methods of lighting have been used in cotton mills. Formerly the localized method was predominant; this was followed by general illumination and the combined method. Today, however, the localized-general method is generally preferred, although there are some excellent installations of general lighting.

No single practice suits all classes of cotton mill lighting. There are bound to be variations, just as there are differences in quality of product, dimensions of rooms, types and arrangements of machinery, costs of power, etc. Even the class of labor employed may have an influence on the amount and kind of lighting which is most suitable. For very fine or colored goods, higher intensities will be required, while with coarser grades a lower power lamp may, in some cases be permissible.

Since the textile industry shares with the steel industry the reputation of being leaders in adopting good lighting practice, it will hardly be necessary to more than briefly outline a few of the advantages of providing for ample illumination with modern illuminants.

The production of a mill is increased through the more active and accurate movements of the operative. The latter also reduces the spoilage, thereby further increasing the production and decreasing seconds.

Modern illuminants are more economical to operate than the older types, so that good illumination with modern units costs little more and sometimes less than the poorer illumination which preceded it. Since good illumination costs only about 1 per cent of the time of the operatives benefited, a very slight gain in the output of an operative will compensate for the lighting cost.

Not the least of the advantages is the prevention of accidents, which may result in delays, shut-downs, and injury to machinery and employees.

While great strides have been made in improving industrial lighting practice within the past year, even more rapid progress may be anticipated in the future. This is not only on account of lessening cost and increasing appreciation of good illumination, but also on account of the increased value of good illumination through the practical conditions of manufacturing. The indications are that there will not be radical changes in practice, but that there will be continual and healthy evolution on the existing basis.

Mill Conditions and Market Reviews.

SOUTHERN MILL SITUATION.

This month finds general business perhaps not so dull in volume as the condition of sentiment would suggest, though the textile industries are not in altogether as satisfactory condition as might be wished, the consuming demand having declined somewhat, and manufacturers being embarrassed by high prices for raw materials and labor at a time of contraction in prices for their product. Recently the stock market has shown a progressive rise, and financial authorities are disagreed as to what extent this circumstance was due to the war situation. The European stock market, on the other hand, scored violent losses and the natural inference was that the European market was scared over the Mexican situation. Later reports, however, have indicated that the foreign market was depressed by local influences, and that the war scare was not a factor at all.

It is feared that no real permanent improvement in business can be expected until there is a cessation of political activities and business allowed to have a much needed rest from such uncertainties, though this country is not likely to be affected to an extent of material demoralization of business conditions, regardless of the course of issues in Mexico, as the possible eventuality has been discounted.

At the recent meeting of the American Cotton Manufacturers' Association in New York this organization gave its endorsement to a system of cotton warehouses organized and operated in the southern states something after the plan suggested by Mr. Duke. There may be some features in the Duke plan which might be modified or changed to become more applicable to the situation, but in the main the Duke idea met with approval. At any rate, the beginning of a good work had official encouragement. The day of the cotton warehouse in the South cannot be long delayed, and the best thought of the country has been concentrated upon it. There is no expectation that the initial system will be perfect, but, once the start is made, advances to perfection will be facilitated. It should naturally follow that the next step after the warehouse for the raw material should be the warehouse for the storage of manufactured goods. It has been pointed out that the great advantage England has over the United States in commanding the trade of the foreign markets is through its system of warehouses where goods are stored awaiting marketing opportunities and its arrangement for financing these warehouses. The warehouse for the storage of goods is a necessary adjunct to the warehouse for the storage of cotton, and it will be in accordance with the course of human events for the second to follow the first. In some quarters we hear objection to the warehouse system based on the proposition that it will be a private monopoly, and this is the only objection we remember to have seen advanced. This objection would be met with the proposition to bring the warehouse under government inspection, which would necessarily carry with it the further benefit of government guarantee, as in the case of national banks. All these are but suggested details for the future weaving in of the perfected system of warehouses. The main point of congratulation is that the movement seems to be on the actual point of being inaugurated in the South, to the benefit of the whole country.

The Fourth National Bank of New York, in its May circular, says in part: "Unusual interest attaches to the movement which has been inaugurated by various bankers and business men in the South to operate warehouses for the purpose of storing cotton and other staples which are each year given as collateral to secure an immense volume of bills which are discounted by the banks. Action in the same direction has also been taken by various municipalities in the South, and it is believed that within a reasonable length of time there will be a large number of warehouses whose receipts may be accepted without question by bankers everywhere. Facilities of this kind would be of immense convenience to the cotton planters, who would be able to borrow money on very much better terms than they can expect to do under prevailing conditions where warehouse receipts often afford relatively little protection for the banker.

"Should the safeguard be generally adopted, the whole business of issuing warehouse receipts would be immensely strengthened, and this form of borrowing would be placed

upon a basis which would afford adequate protection for all concerned and result ultimately in a reduction of the charges now demanded for such accommodation. This movement is of the greatest importance at the moment, when arrangements are under way to organize the Federal reserve banks."

Stuart W. Cramer, the retiring president of the American Cotton Manufacturers' Association, said in his address that pressure of threatened importations had forced domestic cotton manufacturers to meet figures that at some times were profitless, but, on the whole, he spoke rather friendly to the tariff. He said the manufacturers of the country have loyally supported the administration in the trial of its new tariff measure, in the hope that an analysis of its workings will lead to corrective legislation, where required, to the benefit of the producer, and still without detriment to the consumer. This seems to reflect the sentiment of the manufacturers as a class, for, as Mr. Cramer said, the manufacturers will be expected to point out the uneven places in the tariff bill which may need smoothing over. In this spirit the mill people will eventually secure exactly the sort of a tariff they think the good of the industry demands.

On being interviewed by COTTON's representative as to business conditions, with particular reference to cotton manufacturing, FULLER E. CALLAWAY, of the Manchester, Unity and Elm City Cotton Mills, of LaGrange, Ga., said:

"While it is true that business in a great many lines of cotton manufacturing is below normal just at present, I think that underlying conditions are sound, and anticipate gradual betterment in all lines of business. In fact, cotton and cotton products are not as susceptible to adverse conditions as other lines of business, owing to the radical expansion in the use of cotton. By this I mean that the world's growing population not only automatically increases its consumption, but it is being used for so many purposes not thought of as far back as fifteen or twenty years ago that the consumption is increasing in a greater ratio than the production; and although other commodity prices may show a downward tendency from time to time, I believe that, owing to the conditions cited above, the price of cotton will be independent of them.

"As to the immediate future, I think that the gradual recovery that we have reason to anticipate will have fully materialized by fall, and I think that beginning then the lean years will be pretty well over, and efficient cotton manufacturers will be justified in looking forward to prosperous conditions for several years."

Apropos of what Mr. Callaway says in reference to the consumption of cotton being greater than the production, a writer in the April issue of *Review of Reviews* sees a gloomy outlook for the South's future in cotton raising. We have grown so accustomed to the idea that the South's monopoly of cotton production is indestructible that the news that China last year raised five and a third million bales, and is likely to double its production this year, comes as a distinct shock.

This writer states that nearly every European power has tried in vain to introduce cotton culture into some of its colonies, and the failure of their repeated attempts has given us a complacent feeling that the thing cannot be done. As a matter of fact, cotton has been raised in China in large quantities for one thousand years. As most of it was consumed at home, little attention was paid to it by the outside world. But since the prohibition of opium raising, millions of acres formerly planted in poppies have been turned to cotton, with the consequent increase in production. It is now believed that this year the United States will produce less than half the cotton crop of the world, instead of approximately two-thirds, as heretofore.

If China should actually produce anything like 10,000,000 bales, there is no doubt but that the price of cotton in this country will be very materially lowered, although the quality of Chinese cotton is relatively low. Due to the increase in the price of labor and other contributing causes, the cost of production of our cotton has gone up immensely in the past few years. One of the effects of this is seen in the tremendously increased consumption of foreign cotton by the spinners of Europe. Since September, for instance, continental mills have taken 356,000 bales of Indian cotton, as against 67,000 bales during the same period of 1911-12, and 113,000 bales during the same period of 1912-13.

In the face of this sharp competition, it will be seen that American genius and enterprise must turn its attention to the problem of lowering the cost of production of cotton in this country, as advocated by Mr. Vanderlip, of the National City Bank, before the cotton manufacturers at their recent convention at New York.

A meeting of the Hard Yarn Spinners' Association was held in Charlotte on May 6th. A large and representative crowd of manufacturers was present at the meeting. Although the sessions were held behind closed doors, it is understood that the theme of the meeting was in reference to a general curtailment, which resulted in an agreement to reduce production one-third for the next three months, and, further, during this three months to refuse orders in which a profit could not be figured. The meeting was presided over by Vice-President R. S. Reinhardt, of Lincolnton, in the absence of President W. B. Moore. There were about 700,000 spindles represented from the states of North and South Carolina and Georgia.

A call has been issued for a National Foreign Trade Convention to be held in Washington, D. C., on May 27th and 28th, 1914, under the auspices of the American Manufacturers' Export Association, the American Asiatic Association, the Pan-American Society and other leading commercial organizations. It is announced that the attendance is desired of representative manufacturers, merchants and exporters from every section of the country and from every branch of industry. The call states that papers will be issued in advance, so as to be in the hands of delegates, in order to afford a full expression and interchange of views which will develop greater unity of effort.

The following additions and changes have been noted:

At Belmont, N. C., the National Yarn Mills Company has been incorporated with authorized capital stock of $125,000 to manufacture cotton yarns, and will build a new plant at Belmont. Contracts have not yet been placed, but it is understood the company will have 10,000 spindles for manufacturing combed peeler yarns.

It is rumered that the Cliffside Mills, at Cliffside, N. C., will double their capacity. R. R. Haynes, the president of this company, has been considering for several months a plan to develop a water power and enlarge the plant.

The Travora Manufacturing Company, Haw River, N. C., have placed an order for new drawing frames.

Contract has been placed by the Roanoke Mills Company, Roanoke Rapids, N. C., for new drawing and roving frames.

The Bettie Francis Cotton Mills, owned by the Russell Manufacturing Company, Alexander City, Ala., have placed their contract for 5,000 spindles with complementary machinery.

Conestee Mills, near Greenville, are adding new spinning to their equipment.

The Tennessee Line & Twine Company, Elizabethton, Tenn., have placed contract for new machinery.

Rushton Cotton Mills, Griffin, Ga., will add 5,000 new spindles, order for which has been placed.

The Eureka Cotton Mills, Englewood, Tenn., are planning to add to their equipment, practically doubling the same.

Plans and specifications for the mill to be built for the new Pasquotank Hosiery Company, Elizabeth City, N. C., are in the hands of contractors. This mill will be equipped with machinery for a daily capacity of 300 dozen pairs of hosiery.

The old Maginnis Mills, of New Orleans, recently bought by A. K. and W. Loeber Landau, and which has been idle for four years, will be put into operation at an early date. New machinery is being bought, the old machinery overhauled, and the mill is being generally brought up to date.

C. A. Johnson and H. P. Foxhall, co-receivers of the Tarboro Cotton Factory, sold the entire plant at auction on June 1, 1914, the sale included both mills, 7 cotton warehouses, 72 tenant houses and 160 acres of land adjoining the mills. This sale was expected to attract buyers particularly as the concern was sold as a corporation, all outstanding stock having been turned over to the receivers.

The Riverside & Dan River Cotton Mills, at Danville, Va., have placed order for 150 additional spinning frames for their No. 4 mill.

The Greenwood Cotton Mills, Greenwood, S. C., are arranging to add a number of new roving frames, order for this new machinery having been placed.

The Victor Manufacturing Company, at Greers, S. C., are planning to add 72 deliveries of new drawing.

The Longhurst Cotton Mills, Roxboro, N. C., have placed order for nine new roving frames.

The Shamrock Damask Mills, of Landrum, S. C., have been incorporated, with capital of $20,000. This company intends to manufacture cotton damask, the incorporators being H. L. Spear, J. R. Mallory and G. B. Hampton, of Landrum, and C. A. Jeffries, of Gaffney, S. C.

The Banna Manufacturing Company, of Goldville, S. C., have increased their capital stock and will add a lot of new machinery.

The Lanett Cotton Mills, of West Point, Ga., are planning to add considerable new machinery to their equipment.

The imports of raw cotton and ends of cotton yarn over the European frontiers of Russia during the past three years were as follows: 1911, 767,500 bales, valued at $54,521,505; 1912, 649,200 bales, valued at $42,045,115; 1913, 719,700 bales, valued at $51,550,000. In addition imports over the Asiatic frontiers amounted to 147,800 bales, valued at $7,145,000, in 1913, as compared with 143,800 bales, valued at $6,493,000, in 1912, and 126,600 bales, valued at $5,624,000, in 1911.

NEW ENGLAND MILL SITUATION.

There has been a further curtailment of production among New England mills in the past month. Manufacturers have complained of the low prices current and the difficulty of securing prices for goods commensurate with the cost of cotton. Forward orders were very slow in the first part of the month and there was also some hesitation shown by buyers in taking the goods due. Toward the end of the month there was an improvement in wide cloths for printing and converting but it has not extended far enough as yet to warrant hopes of a full production for the summer. The fine goods trade is still very quiet and curtailment at New Bedford has reached to such an extent that 17,000 looms are idle.

Finishers are operating hardly three-fourths of their plants. The piece dye works have been particularly quiet. The printers are running nearly in full, but the bleacheries have been curtailing, and are unable to book forward orders satisfactorily. Hosiery and underwear mills have been disappointed in the volume of fall business, the largest manufacturers being unable to operate more than 60 per cent of their plants. Reorders for spring and summer goods have been slow and as the new selling season for light weight goods approaches, grave doubts are expressed concerning the volume of advance business likely to be placed.

Agreements to curtail production during the summer months are being talked of a great deal but fears of interference from government authorities are working to prevent concerted action. There will be considerable curtailment during June, July and August, but it will be voluntary and not by agreement. As orders expire mills will shut down parts of their machinery as they have been doing for two months past.

Attempts to generalize on the percentages of curtailment prove unsatisfactory as no regular plan is being followed. At Fall River, not more than 85 per cent of the looms are in operation, the narrow looms being generally unemployed more largely than wide looms. At New Bedford some mills have as many as 1,000 looms idle while others have only 250, out 1,400 stopped. Rhode Island mills are employed irregularly, some plants having 90 per cent of their machinery running, and others having hardly 50 per cent. Connecticut mills are employed very irregularly, some of the large mills running in full and others running but 60 per cent of their looms. Lowell mills are perhaps 90 per cent employed. Manchester mills are running in full. Throughout Maine, mills are very irregularly employed and most of the large mills are planning to extend their annual two weeks vacation period into four weeks, this year. There are some mills in the district running five days a week, cutting out Saturdays altogether.

The large staple printers are running in full. They have diversified their output greatly, the American works now printing draperies, Roman stripes, fancy plaid effects on twilled cloths, percales, shirtings for the cutting trade, and many varieties of narrow fabrics. The Pacific is running on silks and cottons, and a wide variety of all cotton goods in various widths and weights. The Algonquin Company is planning to print more wide cloths, while the various plants of the U. S. Finishing Company have a more varied line in work than they have ever had before.

The finishers have been troubled by the vagaries of fashion. This year for the first time in many seasons piece

dyed goods have not been as frequently called for as printed cloths. But the great difficulty they are finding is in securing orders in volume sufficient to warrant them in looking ahead for runs on goods that will prove profitable.

The chief complaint throughout the whole section is the one of reduced profits. This has been brought about not only by the limited orders that are placed but by the small margin of profit between selling prcies and costs. The fiuishers are particularly bothered by the necessity for changing frequently, and handling only small quantities. The condition arises out of the hesitation which has prevailed in all dry goods circles. Buyers have cared to purchase goods only as they have absolutely required them. No normal disposition has been shown to accumulate goods, either at retail or wholesale.

This is the chief factor that is working toward a larger measure of confidence than would be normally looked for in a time of depression. When general confidence is resumed it will be found that stocks in first and second hands are abnormally low and regular buying seems certain to stimulate prices. This has already occurred in print cloths.

During the third week of the month buyers came in for wide cloths and prices rose from ⅛ to ⅜ cent a yard. Fall River is sold about half for the month of June and a fourth for the month of July. Stocks at that center are estimated at 1,300,000 pieces, which is not considered important in view of the prolonged hand to mouth operations. The desire to make a firm effort to keep organizations intact led some selling agents to sell goods low even before jobbers were ready to buy for the fall season. This was quickly resented by the mills and rather than continue it, they gave notice of a purpose to close. Efforts were made to induce jobbers to place orders on memorandum. One or two agents adopted that policy. The results were so unsatisfactory that other agents decided to stand pat on prices until the jobbers gave some indication of general buying. In bleached cottons while Fruit of the Loom and other well known brands were held at firm prices, the low count goods dropped off from ¼ to ⅜ cent a yard.

Owing to the increasing curtailment that has been going on there is much less apprehension of labor troubles expressed. Had trade continued normal the unions of operatives were determined to force the issue of an advance in wages. The Industrial Workers of the World are carrying on a propaganda in various mill centers and while the recent outbreaks have not been in the cotton industry, there have been troubles enough to indicate that the doctrines of this socialistic organization have found a firm root among the foreign workers in this section.

The absence of any large business on ginghams has led mills to diversify their product more than in other years when ginghams were quiet. The latest move in this direction was announced by the Amoskeag Company. This large organization has prepared to offer on June 1 a new fabric called a rompers cloth. It weighs about 4.50 yards to the pound, is 32 inches wide, and has been prepared in all staple patterns and colorings, including the solid colors used for trimming purposes. It is expected that the naming of a price on this new cloth will cause considerable stir, as the big company guarantees that the colorings will be as fast and durable as those in the 19,000 range chambray of which 30,000 cases were sold in three weeks last year.

Tickings, denims, and heavy working suit specialties have been slow. It is now possible for the cutting trades to secure deliveries within a few weeks instead of being compelled to wait, as they have been for some time. A bright spot is found in wide sheetings, and pillow tubings. They are in good demand and are well sold. The better grades of satin quilts are plentiful and slow. Some specialties have sold very well, such as "Batescrepe," Devonshire" cloth, and some others, but the many fine goods mills that make dress cottons and fine shirtings are passing through an unusually dull period.

The machine shops are running in full in some cases, but in no case, is it reported that a full contingent of employees is engaged. While some of the shops are operating 48 hours a week, there are very few that have more than 60 per cent of a full roll employed. The Mason Machine Works is making a strong effort to increase its working forces and some progress has been made. The Draper Company has good loom orders in hand. The American Machine Company at Pawtucket and the Fales & Jenks shops in the same city are doing quite well. The Whitin and Saco-Lowell shops have orders in hand, principally for southern plants but they are not pushing them as they would be able to do if business were rushing.

While it will be seen from this summary of the situation that New England is far from being well conditioned, it is the fact that within a week or two more hopefulness has been expressed concerning the long future of the business. The high cost of cotton bids fair to limit profits until the buying power of the mass of people in the country undergoes another change. That change appears to be in sight.

The crop promise at this time is exceptional and New England manufacturers and financiers believe that good returns from agriculture will bring about conditions strong enough to withstand all the shocks of continued socialistic agitation, and erratic legislation. There is considerable comfort found also in the low money market applied to commercial paper. Stocks of goods are unquestionably below normal among the jobbers and the cutters, and few if any mills are carrying staple stocks. The accumulations of novelties, such as ratines, crepes, and other fancy cloths are likely to be cleared up during the summer, and with curtailment now being applied, it is thought that conditions will be adjusted satisfactorily in the next three months.

COTTON CROP CONDITIONS AND A REVIEW OF THE MARKET.

BY H. AND B. BEER, NEW ORLEANS.

The unfavorable wet weather in the western half of the belt, which was the sustaining feature of the market one month ago, continues to the middle of the present month, and, as a result, crop prospects in the Southwest, especially in the great state of Texas, have been made all the more unpromising. In consequence, cotton for future delivery scored an advance of about $2 per bale and spot values are ¼ cent higher.

By reason of the almost incessant rains, which, as a rule, were heavy, in some instances torrential in character, planting for the new crop in Texas is very backward, later than for many years past. The great producing sections of the central and northern portions of the state appear to be the worst off. Much replanting has to be done in the bottom lands and seeding is reported to be only about half finished in other sections. Planting is usually completed in Texas about May 10th. This year it will not be finished until about June 1st, even if good weather prevails.

East of the Mississippi River planting is nearing com-

pletion, in many sections the plant is up to a good stand, and it is said that chopping will be completed by the end of this month. However, there is a marked deficiency in rainfall in the eastern half of the belt since January 1st, and complaints of the want of rain are beginning to come in. If a drouth develops in that portion of the belt, it would be unfortunate.

On May 25th, the government will commence to receive returns from the South as to the condition of the cotton crop, and as conditions are very unfavorable west of the Mississippi River, indications are that the first Bureau crop condition report of the season, due about June 2nd, will be bullish, the probability being that it will be below the ten year normal of 80.3.

In view of the fact that the world will need a bumper crop next season with which to fulfill consumptive requirements and replenish depleted mill reserves, the present outlook for a record yield is not at all encouraging.

Owing to the big discount at which new crop deliveries are selling at in the future markets, European spinners are said to be protecting their future requirements by buying October and December contracts around the 12 cents level, as the average price at which last year's crop sold at was 12.20 in this market, this year's average price will be about 13 cents, and there is no telling what the average price of next season's crop will bring.

In the face of unfavorable general trade conditions in this country this year, the consumption of cotton by the American mills continues on a record breaking scale. Last month the consumption of cotton in the United States, including linters, was 525,000 bales compared with last year's record of 504,000, making the total since September 1st, 4,041,000 vs. 3,864,000 to even date last year. Last season the American mills consumed 5,587,000 bales of American cotton, season before last 5,225,000. This season it looks as though American mills will consume close on to 6,000,000 bales.

In Europe the textile business is good, much better than last year on the Continent owing to the resumption of trade with the Balkan States, which, at this time one year ago, were at war. In England domestic trade is good and business with India, where financial conditions have improved, is better. It is evident, therefore, that the world will consume at least 15,000,000 bales of American cotton this season, against last season's record of 14,903,000.

Last season's commercial crop was 14,167,000 bales, consumption was 14,903,000. This season's commercial crop will be about 14,700,000, consumption about 15,000,000. It will be seen, therefore, that the world will have consumed about 30,000,000 bales during the past two seasons, whereas the production was only about 28,867,000 bales, which accounts for the small stocks in spinners' hands today, their surplus being used up.

According to figures published by the United States Bureau of the Census, Russia had 9,212,557 active cotton spindles on August 31, 1913, as against 8,800,000 on the same date in 1912. The mill consumption increased from 1,350,000 bales in 1899-1900 to 1,700,000 bales in 1912-13 (years ended August 31). Of the cotton consumed by the Russian mills in 1912, 57 per cent was of domestic origin, as compared with 38 per cent in 1900

THE YARN MARKET.

The yarn market for the past month has been comparatively quiet. The first part of the month was almost dull, but this condition changed toward the middle of the month and business picked up in a very encouraging way. There were conflicting stories about the carded yarn hosiery situation, but the general market opinion was that the situation was not as bad as some were inclined to make out. Sales of southern frame spun 12's, 14's, 16's and 18's were made on the basis of 20 and 20½ cents for 10's during this period. The combed yarn stuation was decidedly mixed, some knitters asking to have delieveries delayed, while others were in need of yarn. Two-ply yarns were quiet. A little later in the month underwear manufacturers began buying yarns conservatively, and selling agents reported that the demand for shipments was fair. The carded yarn hosiery men seemed to be busy, and they were the largest buyers of yarn at that time. Combed yarn continued spotty and deliveries were held up in some instances. In other cases, however, knitters continued pressing for delivery. The weavers were buying yarn from hand to mouth, and there seemed to be nothing in the situation to tend toward encouragement at that time.

During the middle of the month there were reports from the South to the effect that many spinners were selling their white cotton for export in preparation for curtailment. These reports were unconfirmed, however. While most weavers were buying little, there were a few who considered that this period of the month was a good time to buy, and inquiries were in the market for quantities ranging from 20,000 to 100,000 pounds. There were all kinds of prices quoted during this period.

As the month closes, while business is not good, it is not so bad as the expressions of many would seem to indicate. The carded yarn hosiery manufacturers continue to be the best buyers in the market. Sales of coarse numbers were made on the basis of 19 to 20½ cents for 10's. Sales of 16's to 18's tinged stock were made for 20 and 20½ cents, respectively. Combed yarns continued rather quiet. There were also inquiries for two-ply mercerized yarn in small lots. There were some inquiries for 36's two-ply to 60's two-ply lisle. Weaving lines continue rather quiet, and insulated wire coverers are reported as not buying yarns.

Curtain manuacturers are not doing very much, and upholstery manufacturers say that business is very dull. Tapes are fair and towels are fair, but new business is coming in slowly. There will probably be more or less independent curtailment throughout the South during the month of August in the shape of extended vacation periods to allow the mills to make repairs and do similar work of this character. This will give orders a chance to catch up, and if Congress will not insist on passing adverse and radical legislation to such an extent as to completely kill business enterprise, it is probable that the fall months will see a considerable improvement in all lines.

Following are recent quotations from the Philadelphia market:

Southern Single Skeins.

26s	22½ @23	30s	24½ @25
8s	18 @18½	10s	18 @19
12s	18½ @19½	14s	19½ @10
16s	19½ @20½	20s	20½ @21

Southern Two-Ply Skeins.

4s to 8s	17½ @18½	10s	10 @19
12s	18½ @19½	14s	19 @20½
16s	10 @20	20s	21 @21½
24s	22½	26s	23 @23½
30s	24½ @25	40s	28½
50s	35½ @36	60s	44

Carpet and Upholstery Yarns in Skeins.

9-4 slack	19½	8-4	19
8-3 slack	17½		

Southern Single Warps.

8s	18 @18½	10s	19 @19½
12s	19 @20	14s	19½ @20½
16s	19½ @21	20s	20½ @21
24s	23	26s	23½
30s	25	40s	29

Southern Two-Ply Warps.

8s	18 @19	10s	18½ @19½
12s	19 @20	14s	21
16s	21 @21½	20s	21½ @22
24s	23 @23½ lb	26s	23½
30s	24½ @25	40s	29
50s	36		

Northern Two-Ply Carded Peeler Skeins.

22s	23½	24s	24
26s	24½	30s	25 @25½
36s	28 @28½	40s	30
50s	36	60s	44 @45

Two-Ply Combed Peeler Skeins.

20s	28 @29	24s	30 @30½
30s	31½ @33	40s	37 @41
50s	43 @45	60s	49 @53
70s	57 @62	80s	65 @68

Southern Frame Spun Yarn on Cones.

8s	18 @19	10s	19 @20½
12s	19½ @21	14s	20 @21½
16s	20 @22	18s	20½ @22½
20s	20½ @23	22s	21 @23½
24s	23 @24	26s	23½ @24½
30s	26 @27		

Northern Mule Spun Carded Yarn on Cones.

4s to 8s	21 @21½	10s	21½ @22
12s	22 @22½	14s	22½ @23
16s	23½ @24½	18s	23½ @24
20s	24 @25	22s	24½ @25
24s	24½ @25½	26s	25½ @26
30s	27 @28	40s	32½ @33

Northern Mule Spun Combed Peeler Yarn on Cones.

10s	27 @27½	12s	27½ @28
14s	28	16s	28½
18s	29	20s	30 @30½
22s	30½ @31	24s	31 @31½
26s	32 @32½	30s	35 @35½
36s	37 @38		

THE KNIT GOODS MARKET.

During the past month the knitting manufacturers of the country, or at least a very large proportion of them, gathered together at Philadelphia for the annual convention of the "happy family." While there was little optimism expressed during the course of that meeting, there was a great deal of determination indicated to tide over the present and possible future difficulties, and in the meantime to indicate strongly the desires of the members of the association as to the adverse legislation now before Congress.

Spring underwear lines are being shown by knitters, but jobbers on the New York market assert the opinion that June would be plenty of time for showing the new lines. One of the large New York state mills has its salesmen seeking orders on a new line of union suits to retail at $1.00 each. It is believed that the hosiery schedule in the new tariff law is certain to figure very prominently in the congressional campaign this fall. Several buyers from western houses are reported to be abroad buying foreign full-fashioned goods, and it is stated that one or two Philadelphia mills have determined to make prices which will unsettle the plans of these buyers, who are seeking to displace the established domestic lines. The recent action taken by the spinners' associations to curtail the yarn output has been accepted by the knitters as a good move for the long future. The approach of a new spring selling season in underwear and hosiery has led to inquiries from knitters who are desirous of contracting for their requirements for the last half of the year. The immediate underwear business shows no improvements over the conditions of the past few weeks. Jobbers, it is evident, have made up their minds to keep stocks as low as possible up to probably July 1st, and are depending upon the mills to aid them. Under these conditions it is premature to talk of a season twelve months away.

Knit goods manufacturers are objecting strenuously to the methods of the government inspectors, who are asking for their books and acquiring information for the use of which the trade is still in ignorance. A number of knit goods manufacturers from Philadelphia and vicinity were in Washington during the latter part of April with the intention or holding a conference with the heads of the Department of Commerce relative to this matter of government inspection. It was desired by the manufacturers for the government to wait until next year before they made these investigations, so that the true effect of the Underwood tariff law could be obtained. This, however, did not seem to appeal to the department officials. This committee of manufacturers, therefore, recommended that the subject be brought up at their annual convention, where they hoped to be able to protest effectively against the methods being adopted by the present administration as well as against the efforts toward class legislation which are now being carried on in at least one house of Congress.

The Lowe Manufacturing Company, at Huntsville, Ala., has recently changed some of its executive officials, and Edward R. Ballou is now the agent for this mill. Mr. Ballou has been connected with Amory, Browne & Co., for several years. For some time the product of this mill has been shipped to the East for finishing, but they have recently equipped a finishing plant of their own and are now finishing and shipping direct to the trade. Other recent changes in the executive heads is the replacing of A. M. Hamilton, the former manager, by James Munn, formerly of New Bedford, Mass. W. M. Gillis has taken charge of the carding, spooling and warping, while Joe E. Brendle continues as overseer of spinning. J. H. Winn is overseer of dyeing. A number of new operatives' houses are being built and old ones remodeled, while the streets of the village are being repaired and fixed up. New dwellings are to be built for the manager and overseers, and the planting of flowers and shrubs in every available place will tend to make this village one of the most beautiful and home-like in the South. We are also advised that they have a baseball team, of which Joe E. Brendle is manager, that expects to make all comers look to their laurels.

During the closing exercises of the evening design department of the New Bedford Textile School, the members of the graduating class presented their instructor, Samuel Holt, with a handsome leather traveling bag and toilet case. James Plummer, who made the presentation, spoke of the pleasant relations that had existed between students and instructor during the two years they had been members of his class. Mr. Holt responded, thanking them for their kindness in showing their appreciation of his efforts to teach them. The members of the graduating class are: Joseph Boothroyd, Robert Cross, Alexander Holden, Harold Marsh, James Plummer, William Roberts, Aaron Sharples, Richard Smith, Leslie Walters and John Wignall.

COTTON MANUFACTURING.

THE ROVING PROCESS.

BY H. C. W.

TENSION.

We have taken up each feature of winding in detail and there remains only one more point to be considered. This is tension. This tension may be spoken of as a slight draft between the bobbin and front drawing roll. It is only of an amount sufficient to keep the roving from sagging between the top of the flyer and front roll and to wind the roving onto the bobbin in the form of a firm, well built package. If this draft or tension is not sufficient, it winds a soft spongy bobbin, the roving is weak, and a loss of production ensues. If too much, it puts too much strain onto the roving and weakens it.

During winding, this tension is regulated by the rate at which the cone belt is moved along the cones. This can

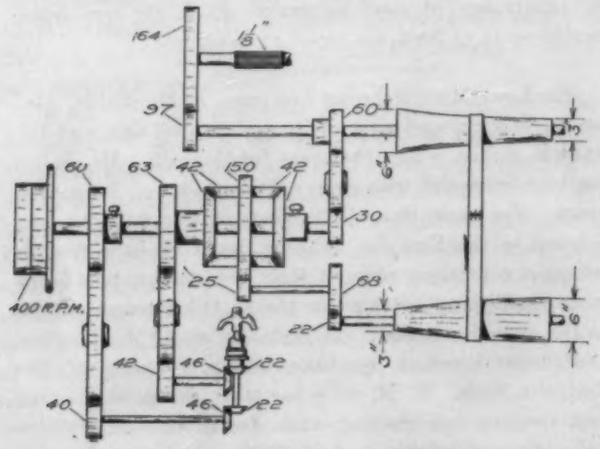


FIG. 12. GEAR LAYOUT OF FRAME.

be altered by changing the size of the tension change gear X in Fig 13. This gear, driven from the tumbling shaft, which makes one-half a revolution at the end of each layer wound onto the bobbin, drives the upright hand wheel shaft and by means of the gear P, it moves the cone belt along the cones. It should be of such size that it will provide the same winding tension at all stages of bobbin size.

In explaining this tension, a mathematical illustration will perhaps make it more easily understood. It may also, in addition explain perhaps more clearly the action of the compound, cones, etc., and their relations to the speed of the bobbin, see Fig. 12.

We will assume cones as in previous cases to be designed for bobbins 1 inch when empty and 4 inches when full. The length is 30 inches and we found that the diameters at the starting point must be 6 inches for the top cone. The speed of the main pulley is 400 r.p.m. The speed of the front roll would be found as follows:

$$\frac{400 \times 30 \times 97}{60 \times 164} = 118.29 \text{ r.p.m.}$$

$118.29 \times 1.125 \times 3.1416 = 417.84$ inches delivery per minute by the front roll. This delivery is constant throughout the building of the bobbin.

Now we saw that for every revolution of the sun wheel, the bobbin driver received two, so it follows that

$$\frac{2 \times 21.56 \times 63 \times 46}{42 \times 22} = 135.24 \text{ r.p.m. of bobbin.}$$

in addition to the 1254.5 r.p.m. obtained from the right hand bevel. It is these 135.24 r.p.m. that do the actual winding and the amount that would be wound would be $135.24 \times 1 \times 3.1416 = 424.65$ inches per minute.

We found that the front roll delivered 417.84 inches per minute and that the bobbin winds on 424.65 inches per minute. It is evident then that the amount of draft or tension is equal to $424.65 \div 417.84 = 1.016$ draft between bobbin and front roll. This means that for every 100 yards delivered we will have 101.6 yards wound. This is sufficient to keep the ends from sagging.

When the bobbin reaches a diameter of 4 inches the cone belt is then 30 inches from the starting point and running on a diameter of 3 inches for the top cone and 6 inches for the bottom cone. The winding revolutions of the bobbin at this time are then equal to

$$\frac{400 \times 36 \times 3 \times 22 \times 25}{60 \times 6 \times 68 \times 150} = 5.39 \text{ r.p.m. of sunwheel}$$

$$\frac{5.39 \times 2 \times 63 \times 46}{42 \times 22} = 33.81 \text{ r.p.m. of bobbin.}$$

$33.81 \times 4 \times 3.1416 = 424.65$ inches wound on.

$424.65 \div 417.84 = 1.016$ draft. So it is seems that the draft remains the same throughout the building of the set.

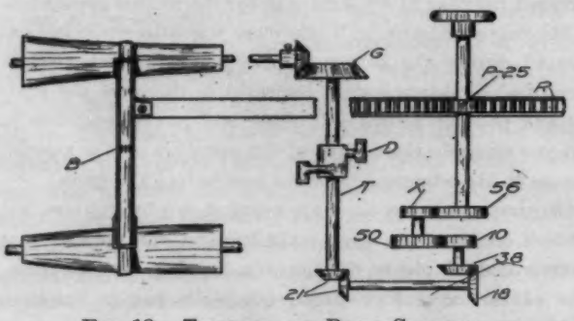


FIG. 13. TENSION AND RACK GEARING.

The tension of the first layer wound onto the empty bobbin is governed by the position of the cone belt on the cones. The tension under which each succeeding layer is wound depends upon the tension gear which moves the cone belt along the cones. In order that each layer may be wound under the same tension, the cone belt must be moved along 10 inches for each inch of increase in diameter of bobbin. The calculation or method of finding the tension gear becomes one of finding a gear to move the cone belt along 30 inches while the bobbin is being built.

The spindle speed is found by the following equation:

$$\frac{400 \times 60 \times 46}{40 \times 22} = 1254.5 \text{ r.p.m.}$$

and this also is constant.

It will be remembered that the bobbin receives motion from two sources. First, from the right hand bevel of the compound, which is fast to the jack shaft and second from the cones through the sun wheel. The motion received from the right hand bevel is found as follows:

$$\frac{400 \times 42 \times 63 \times 46}{42 \times 42 \times 22} = 1254.5 \text{ r.p.m}$$

By comparison it will be found that this speed is identical with the spindle speed. It is also evident that as both the spindle and bobbin speeds are equal no winding can take place. It follows therefore that this motion takes no part in the actual operation of winding. These winding revolutions are obtained through the sun wheel from the cones. It may be found by the following equation, with the belt at the starting point:

$$\frac{400 \times 30 \times 6 \times 22 \times 25}{60 \times 3 \times 68 \times 150} = 21.56 \text{ r.p.m. for sun wheel.}$$

By referring to Fig. 13 it is seen that the tension gearing is driven from the tumbling shaft T. The dogs D are in contact with the builder jaws. When these jaws pass above or below the dogs the tumbling shaft turns one-half a revolution. This occurs at the end of each layer wound onto the bobbin.

Referring back to Fig. 12 we found that the front roll delivered 417.84 inches per minute and the spindle made 1254.5 r.p.m. which would put into the roving 3 turns of twist per inch. This is approximately what would be required for 6 hank roving and in figuring the sizes of tension and lay gears we will consider that we are running 6.00 hank roving.

It has been found from experiment and practical application that the number of layers per inch of any hank roving wound onto the bobbin is equal to the constant 38.15 multiplied by the square root of the hank. $38.15 \times \sqrt{6} = 38.15 \times 2.44 = 93.08$ layers of roving per inch.

As we build the bobbin from 1 inch to 4 inches in diameter we add on 3 inches of roving or layers equal to $\frac{1}{2} \times 3 \times 93.08 = 139.62$ layers. While we are winding these layers onto the bobbin we must move the cone belt 30 inches. The tumbling shaft makes one-half a revolution for each layer wound on. In winding 139.62 layers it would make $139.62 \div 2 = 69.81$ full revolutions.

The cone belt travels 30 inches and being carried by the rack R, the rack must move 30 inches in winding 139.62 layers. As the pitch of the rack is three-eights inch the number of teeth passing a given point in 30 inches would be $30 \times 8/3 = 80$ teeth. As the rack is moved by the pinion P on the hand wheel shaft it follows that it must turn 80/25 or 3.2 revolutions.

The problem now resolves itself into one of finding the correct size of gear to give the handwheel shaft 3.2 revolutions for 69.81 revolutions of the tumbling shaft. It is found as follows:

$$\frac{69.81 \times 21 \times 18 \times 10 \times X}{21 \times 38 \times 50 \times 56} = 3.2$$

From which it is found that X or the tension gear = 27 teeth.

While considering tension it might be well to say a little on the adjustments and ways of changing it. If a set of roving seems to start under the right tension and constantly grows tighter, this means the cone belt was in the correct starting position, but the cone belt has not moved along the cones fast enough. In other words the tension gear is too small. If it grows slack it means the tension gear is too large. If it is possible to do so, never change the position of the cone belt guide fastened to the rack to overcome any of these defects in tension. If necessary to do so always remember to readjust it again on the start of a new set. Then change the tension gear.

THE LAY GEARING.

The coils of roving are laid onto the bobbin by the up and down movement of the bobbin rail. This rail is driven from the lay gearing shown at Fig. 14. The rack R, of which there is one at each sampson, is fastened to the bobbin rail and slides in a groove in the sampson. It is driven by the 16 toothed pinion on the lifter shaft A, which extends the whole length of the frame. This shaft is driven from the bottom cone and as the bobbin builds, the speed of the rail is reduced, laying the coils side by side.

The gear L is the lay change gear and may be changed to vary the speed of the rail to suit different hanks of roving. The shaft B carries two small 32 tooth bevel gears set opposite one another. This shaft moves in a horizontal direction, being moved by an eccentric on the tumbling shaft. Thus for each half revolution of the tumbling shaft the two 32 toothed bevel gears are alternately thrown into mesh with the large 63 toothed bevel, thus driving the rail in the opposite direction.

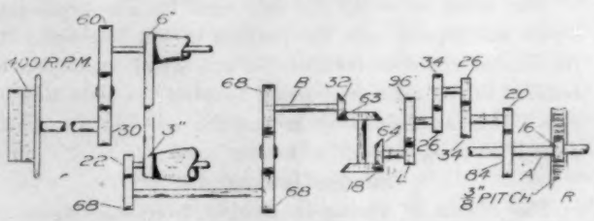


FIG. 14. THE LAY GEARING.

In laying the coils of roving upon the bobbin it should be done in such a way as to show no bare bobbin between the coils and still not have the coils ride each other. The first will give trouble with the winding tension and make a soft, spongy bobbin. The second will produce a poorly wound bobbin, cause weak and uneven roving, and thus produce weak yarn. It has been found from practice that when the coils are correctly spaced, that the number per inch will be equal to 13 times the square root of the hank for rovings ranging from 4 to 7 hank.

As we are producing 6.00 hank roving, the number of coils per inch would be $13 \times \sqrt{6} = 13 \times 2.45 = 31.85$ coils per inch. The length of the traverse is 7 inches and the number of coils on the first traverse equals $7 \times 31.85 = 222.95$ coils. The diameter of the empty bobbin is 1 inch. Then the number of inches wound on for the first traverse will equal $1 \times 3.14 \times 222.95 = 700$ inches practically.

By referring to Fig. 12 we find that the front roll delivered 417.84 inches per minute. From this we find that in one minute only a part of the full traverse is wound in one minute. The front roll delivers 417.84 inches per minute and the total inches wound per traverse is 700. inches. The percentage of the full traverse wound per minute may be found then by dividing 417.84 inches by 700 inches, which equals .5969. This means that only 59.69 per cent of 700 inches is wound per minute and in order that the coils may be correctly spaced it means that the

first traverse of the rail must be at a speed equal to 59.69 per cent of 7 inches, or at the rate of 4.17 inches per minute. Therefore it follows that the carriage must rise or fall at the rate of 4.17 inches per minute for the first layer. The rack R, bolted to the carriage must also rise and fall at an equal speed. As the pitch of the teeth on the rack is three-eighths inch the number of teeth that will pass a given point per minute will be equal to $4.17 \div \frac{3}{8} = 11.12$ teeth. As the pinion meshes with the rack 11.12 teeth must pass a given point per minute. This pinion is carried on the lay shaft and the revolutions of the lay shaft per minute will be found by dividing 11.12 by 16, the number of teeth in the pinion. $11.12 \div 16 = .695$ r.p.m of lay shaft.

We know the speed of the main pulley to be 400 r.p.m., and we know the cone belt must be on the 6 inch diameter of top cone and the 3 inch diameter of bottom cone to produce the correct winding speed. The problem is now to find the correct size of gear L to give the lay shaft .695 r.p.m., knowing the main pulley to be driven at 400 r.p.m. It can be found by the following equation:

$$\frac{400 \times 30 \times 6'' \times 22 \times 68 \times 32 \times 18 \times L \times 26 \times 26 \times 20}{60 \times 3'' \times 68 \times 68 \times 63 \times 64 \times 96 \times 34 \times 34 \times 84} = .695$$

Solving L = 18 teeth = size of gear.

The speed at which the rail runs for the succeeding layers will depend upon the position of the cone belt. As the bobbin speed is reduced the rail speed must also be reduced in the same proportion to wind the coils side by side. This is obtained by driving the rail and the bobbin from a common source, the bottom cone.

THE BUILDER MOTION.

The bobbin of roving in passing from one frame to another requires quite a little handling. It must, therefore, be built in such a way as to withstand such usage and still remain intact. This is done by building a bobbin tapered at both ends. This tapering is done by reversing the rail a little earlier for each succeeding layer round. The reversing is accomplished by the builder motion. A diagram of an American type of builder is shown at Fig. 15.

The builder rack A is raised and lowered by means of a rack gear driven from a pinion gear on the lay shaft. This builder rack A carries the builder screw B, which is threaded right hand for one-half its length and left hand for the other half. This means that if this screw is turned the builder jaws C^1 and C^2 will be either drawn together or apart according to the direction in which it is turned. The builder jaws are prevented from turning through contact with the face of the plate A. The dog G is always held against the jaws C^1 and C^2 except at the moment during reversing.

The builder rack moves up and down on the builder rod D, which has a spline cut in it. This spline is cut large enough to allow a key on the inside of the screw B to enter and move freely up or down in the spline. Through this key any movement of the rod D is transferred to the screw B and from it, to the jaws C^1 and C^2. Some of builders have a solid screw to which a square builder rod is fastened at the top. This square rod rises and falls with the builder, passing through a square slot in the gear K. In the type shown at Fig. 15 the rod is stationary. The builder screw is turned from the taper gear F. This gear meshes with the rack E which moves the cone belt along, the cones driven from the tension gearing shown in Fig. 13. This tension gearing receives its motion from the tumbling shaft through the gear H.

The jaws of the dog G are pressed against the faces of the builder jaws and held there by means of a spring suitably located at the base of the tumbling shaft. The builder rack rises and falls but always in a direction opposite to the builder or bobbin rail. That is if the bobbin rail is rising, the builder rack is falling. This is due to the fact that they are driven from opposite sides of the lay shaft.

We will suppose the rail to be rising. The builder is then moving downward and continues to do so until the jaw C^1 passes under the dog. This allows the tumbling shaft to turn, and from the spring located at the base of the shaft, it receives motion enough to turn the gap gear until it meshes with the gear on the end of the top cone shaft. The shaft is then revolved until the opposite arm of the dog bears against the face of the builder jaws. At this time the gap gear has turned until the gear on the top cone shaft is running in the opposite gap.

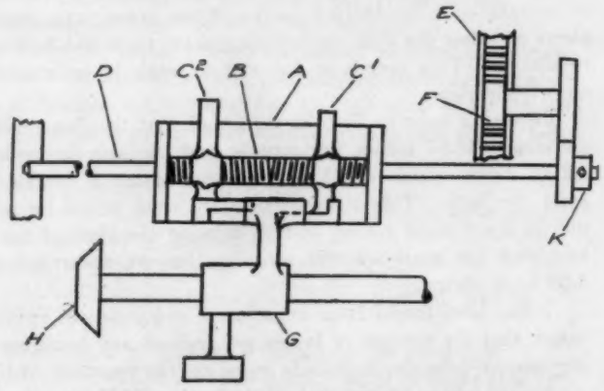


FIG. 15. A TYPE OF BUILDER MOTION.

This one half revolution of the tumbling shaft reverses the direction of the rail, thus driving the rail down and the builder up. It also moves the cone belt along the cones to reduce the speed of the bobbin to compensate for its increase in diameter. To do this, it requires a movement of the cone belt rack E. The taper gear F, which is in mesh with the cone belt rack, is turned a slight amount and through the taper gearing, the rod D, and the screw B, the jaws C^1 and C^2 are drawn together a slight amount. This reduces the length of traverse, allowing the dog to pass by the ends of the builder jaws a little earlier at the end of each traverse, thus changing the direction of the bobbin rail a little earlier each traverse and building a bobbin having equal tapers at the top and bottom. The angle of this taper is dependent upon the size of the taper gear F. The larger it is, the more blunt the taper; the smaller it is the sharper the taper will be. It usually requires a trial before determining the most satisfactory gear to use. After once determined however, it is seldom, if ever, changed.

The adjustment of this type of builder is very simple. First, have the eye in the presser of the flyer directly in the center of the traverse on the bobbin. If the traverse is 7 inches then the eye in the presser should come opposite a mark on the bobbin 3½ inches from the top of the traverse on the bobbin. Next, make sure the cone belt is wound back to the starting point. This opens the builder jaws to the widest amount. Next see that the distance from the

top of the jaw C^1 and the bottom of the jaw C^2 is 7 inches, or the length of the traverse. To change this distance swing the taper gear out of mesh with the cone belt rack and by turning the gear K we can open or close the builder jaws to the required amount. Then swing the taper gear back into mesh with the cone belt rack. Next see that lower edge of the upper arm of the dog, or the upper edge of the lower arm of the dog G bears on the builder jaws at a point 3½ inches from the top and bottom of the jaws. This may be done by moving the dog up or down on the tumbling shaft. It may also be accomplished much easier by moving the builder rack up or down. To do this it becomes necessary to loosen the pinion on the lay shaft driving the pinion rack. Then by turning this pinion we can set the builder at any point desired.

It can be seen from this description that the adjustment for length of traverse is made by changing the position of the builders jaws C^1 and C^2 on the screw B. The adjustment for position of traverse on the bobbin is made by changing the position of the builder rack as a whole.

Other motions are applied to fly frames such as the full bobbin stop motion. This usually takes the form of a clamp or lug fastened to the cone belt rack which comes under a catch releasing a lever which is heavily weighted, and due to this weight it moves the belt shipping rod along until the belt is on the loose pulley.

Another stop motion applied is one for stopping the frame by the same means when the rail runs over the required length of traverse.

Another stops the frame when the cone belt breaks, using an auxiliary cone belt to prevent the ends from slackening too much. This is sometimes very successful and other times not so much so.

Breakdowns are perhaps more frequent on fly frames than on other mill machinery due to the high speed at which the gears and some other parts run. The breaking down of the ends between the bobbin and the front roll may be due to the following causes:

1. Broken cone belt.
2. Broken gear in bobbin drive.
3. Loose compound gear.
4. Loose gear in drive from bottom cone to sun wheel.
5. Loose gear in spindle drive.

If the trouble is in the bobbin drive it can be determined by lifting the bottom cone and then by turning the bottom cone by hand, you will be able to trace the trouble to its source.

If the spindles do not turn or hesitate in turning it may be due to a loose gear in the spindle drive which may be found by turning the hand wheel on the main driving pulley.

Trouble of this kind on a few spindles in one row or on a single row of spindles will be found to be usually due to a loose coupling gear.

Failure to reverse at the proper moment or failure to reverse at all may be caused by one of the following things:

1. Insufficient tension on spring at base of tumbling shaft.
2. Binding of tumbling shaft and lack of proper oiling.
3. Binding of cone belt rack due to clots of wadded waste or lack of oiling.
4. Slipping of pinion driving builder rack.
5. Binding of gears known as tension gearing.
6. Binding of upright hand wheel shaft.

A bunch on the bobbin caused by a stoppage of the rail may be due to one of the following causes:

1. Loose or broken gear in lay drive.
2. Slippage of twin gear. This may also cause a hesitation in reversing.
3. Bobbin or other obstruction under rail or under racks.

It very often happens that a certain size of bobbin becomes scarce due to a surplus of roving. It is possible to use a bobbin with an eight inch traverse on a frame built for 7 inch traverse provided the diameters are not of too great a difference. This can be done by dropping the rail 1 inch or more easily by raising the builder 1 inch. This gives a bobbin of roving with 7 inch traverse placed on the bobbin, leaving 1 inch bare at the bottom. It is necessary to place the traverse on the top seven inches so that the bobbin won't lift the flyer off the spindle when the rail comes up.

DESIGNS FOR FANCY COTTON FABRICS.

BY THOMAS WOODHOUSE AND JAMES IRELAND.

PART ELEVEN.

Still a higher degree of ornamentation obtains in Fig. 46, which represents a finer type of cloth than previously described. There are 104 threads in each repeat of the pattern, and of these the 8 threads of extra warp, shown in solid marks in Fig. 47, are utilized to develop the olive green scroll figure in the center of the broad white stripe of plain. The complete design is illustrated at O, Fig. 47; the draft at P, and the weaving plan at Q. It will be observed

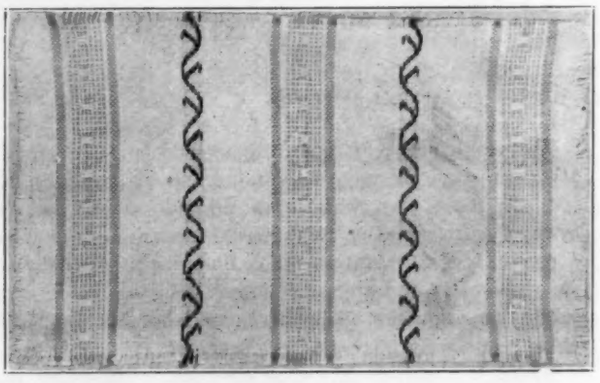


FIG. 46.

that 12 harnesses are required for the weaving of this pattern. The warping particulars appear below:

White	1 1 1 1 2 30 1 1 1 1 1 1 1 31 3 1 1 1 =	80
Light Green	1 1 1 1 4 4 1 1 1 1 =	16
Olive Green	1 1 1 1 1 1 1 1 =	8
	Figured effect in the center of broad white stripe.	104

The white weft spot effect in the center of the 1 white 1 light green stripe is obtained by allowing four of the threads, the first two and the last two, to float on the back

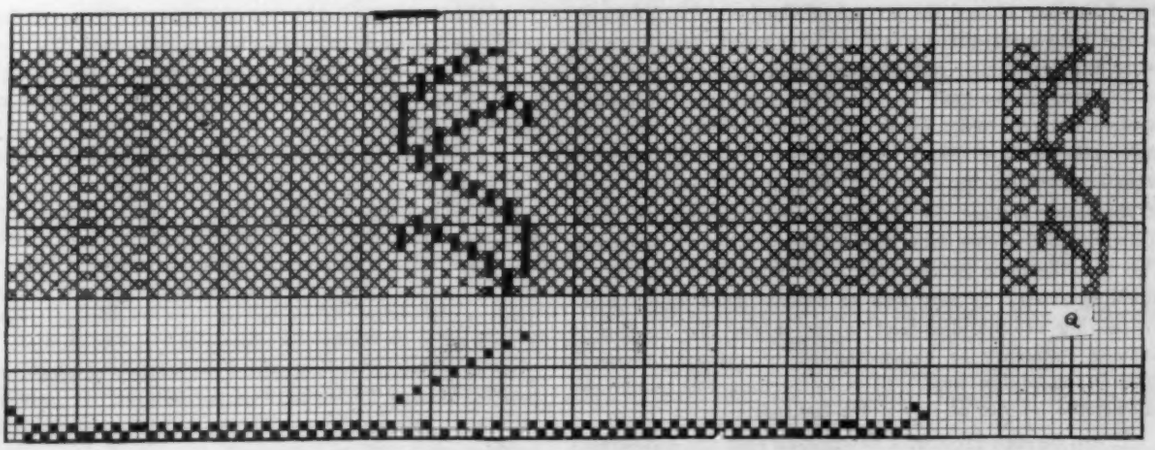


FIG. 47.

of the cloth. Two of these four threads float under 7 successive picks, while the other two float under 5 successive picks. Threads 9, 10, 15, 16, 89, 90, 95 and 96 represent four pairs of white threads which form the edges of the two light green stripes on the borders of the complete green and white stripe.

All the threads of the warp may be controlled by a dobby, or, if desired, the whole of the plain work may be operated by a plain tappet, and the extra warp threads, those in solid marks, as well as the two threads at the beginning and the two threads at the end, controlled by a dobby. The only objection to the latter method is the fact that the shedding motions of dobbies and tappets seldom work exactly in unison. On the other hand, the plain ground of the fabric would probably be more perfectly woven and covered by means of a tappet than by a dobby. If the joint method were chosen, the last 10 vertical lines of the weaving plan would represent the movements of the 10 hooks.

(To Be Continued)

KNITTING DEPARTMENT.

OPERATING COSTS AND ECONOMIES.

BY CLYDE E. MURRAY.

The easy-going manufacturing methods of our grandfathers are gone the way of the tallow candle and the flintlock. In these days, when a variation of 5 per cent in cost may mean riches or ruin, eternal vigilance is the price of success. Manufacturers today find themselves between the devil and the deep sea—between the "devil" of constantly increasing cost of materials and labor and the "deep sea" of constantly increasing competition.

There is a certain form of competition to which the manufacturer cannot well object—namely, to that of the man who knows exactly what his goods cost, and whose prices, if low, reflect advantages actually secured through volume or by reason of highly efficient methods of production. The form of competition which is most dreaded, however, is that of the man who, having no proper knowledge of cost, sets prices which preclude the possibility of there being an adequate profit in the business for anyone.

The national accumulative effect of this unintelligent competition was really the prime factor in causing the formation of associations in various lines, with the consequent agreements relative to sales prices. Recent legislation, however, has tabooed these selling agreements, and manufacturers find themselves contending with the same old discouraging competition. Despite this fact, this legislation has been a beneficial move, in that it has forced manufacturers to approach the problem from an entirely different angle—namely, uniform cost-finding methods. No matter how many selling agreements might be in force, the evil of manufacturing some portion of the product at a loss would still be in evidence without an exact knowledge of final costs. Absence of this knowledge forces a manufacturer to govern his selling price by that of his competitor. His competitor is just as liable to be producing at a loss—in fact, more so, as the natural law of competition has a tendency to lower selling prices from year to year, due to the sending out of leaders with an attractive price attached and the almost utter impossibility of getting that price back to its original figure.

That is true in your line as well as many others. A number of industries, however, have awakened to the fact that it is business suicide to continue as they have been doing, and through the activity of their association officers have adopted a corrective measure in the shape of uniform cost methods. Wherever this measure has been adopted the desired results have been immediately and almost automatically attained. No manufacturer will continue to produce a line of goods in the face of conclusive proof that he is exchanging a dollar for eighty or ninety cents.

The manufacturer of knit goods today faces the combination of advancing costs on material, labor and expense, together with the keenest sort of competition on the selling end of the business. Under such circumstances profits

*Presented before the National Association of Hosiery and Underwear Manufacturers.

would undoubtedly be sufficiently reduced if all competition were based on an exact knowledge of costs. In the absence of such knowledge it is not surprising that conditions are far from desirable.

If we were able to make a canvass of the entire industry, we would find a large number of manufacturers who would cheerfully admit their ignorance of this important matter, and who would, at the same time, defend themselves by claiming that the clerical cost to be incurred in determining manufacturing costs would be in itself so great as to be prohibitive. We, in turn, cheerfully admit that cost-finding, like any other good thing, can be and is carried too far. But for every manufacturer who goes too far into the matter there are hundreds who do not go far enough. This is notably the case in the knit goods industry.

This fear of over-elaboration in details and consequent excess of clerical cost is largely responsible for the conditions which exist in the industry along this line. Yet, despite the fact that there are refinements of cost-keeping which are profitless, there is a happy medium of cost knowledge which all who expect to survive must in time acquire.

We accept the pound and the yard as units of weight and measure, and yet as we use them in business they give us results only within a reasonable degree of precision. In the same way it is possible to devise for any business a method of determining cost which, while free from hair-splitting distinctions, will give wholly acceptable results with clerical economy.

It is usual in the knit goods industry to prepare an estimate of the cost of each line at the beginning of the season in order that an equitable selling price may be set. This condition of affairs always has existed and an estimated cost will always be a necessary part of your business. Very few manufacturers, however, have sufficient knowledge of the variations in cost which occur during the actual production of the goods.

The estimated cost and the actual cost, determined after the production of the articles in question, will show variations at every point—in the weight of the yarns used, the amount of waste made in cutting, etc., and in the amount of trimming and supplies issued from stock. The labor cost will vary, especially under the day-work wage-payment plan, and expense will, of course, vary widely under changing production conditions.

The work of the cost expert is to present with clerical economy all these per cents of discrepancies and variations as they occur in such a way that the manufacturer may always know the relation between his actual costs and his assumed costs as expressed in his estimates.

Entirely apart from the matter of variation between estimated and actual costs, many manufacturers have been misled by an improper treatment of manufacturing expense in computing estimates or costs. In applying such expense the heretofore accepted method in the knitting industry has been to use as a basis the unit of dozens or a combination of labor and material. Both of these methods are obviously incorrect.

Consider them in the order named: That the dozens method is incorrect will be apparent if a study of the detail of manufacturing expense items is made. Such a study will show that expenditures of this nature are incurred, practically without exception, in order to keep the workmen employed, and hence may be equitably applied to the various lines produced only in relation to the productive labor, the labor hour, the machine hour, or other factors which reflect the element of time.

To show more specifically how possible it is to be misled by the allocating of expense upon the basis of the dozen manufactured, let us suppose that a concern produced last season a line in which the cheaper grade predominated. Their estimates of expense costs for this season would naturally be based on a production possible under last season's conditions. Assuming that this season the sales run largely upon the better grades, the production in dozens will drop off correspondingly and the actual profits will fall below the estimates, for the simple reason that expense was improperly treated in the estimates.

Manufacturing expense ordinarily approaches in volume the productive labor. Its misapplication, therefore, is just as misleading as would be an equally incorrect handling of the direct labor charges. How many manufacturers would consider satisfactory the averaging of labor charges in their estimates on a basis of the dozens manufactured?

As compared with the dozen method, the allocation of expense in relation to productive labor would have the effect of reducing the calculated cost of the grades which are cheaper from a labor standpoint, at the same time throwing the burden on the more expensive lines. Such a distribution of expense is, however, correct, and will produce costs which will be comparable from season to season, for the reasons stated.

Applying expense on a combination of labor and material is even more inaccurate than the dozen method. The value of material in a dozen garments or a dozen hose should have no bearing upon the amount of expense charged to that garment or hose. Let us consider a hosiery mill manufacturing a line ranging from $2 to $30 per dozen. Admittedly, there is very little more labor on the $30 number than on the $2 number. Yet ten or twelve times the amount of expense would be assessed against the former than against the latter. Analyzing expense by items fails to show why this should be. There should be no greater charge for administrative expense, for taxes, insurance, depreciation or general expense, except as reflected by any increase in the labor cost. The $30 number takes up no more space moving through the plant, nor, in fact, costs any more to manufacture, so far as expense is concerned, with the possible exception of a slightly increased charge for interest on money borrowed to carry the higher-priced material.

The reflection in the unit costs of this method of expense application is to show a lower cost on the cheaper grade and a much higher cost on the better grade than is actually the case. This is just the opposite to what it should be to allow for an intelligent setting of selling prices.

To illustrate further: Some years ago we served a manufacturer of ladies' underwear who had just sent out an attractive leader. The cost of this number was figured as usual and showed about 5 per cent profit. Over 5,000 dozen had been sold by their selling agents before we were in a position to submit a final cost. This final cost, however, showed that they were taking a 30 per cent loss instead of a 5 per cent profit. The loss amounted to something over $12,000 on that one number. By using a combination of labor and material on which to apply expense, this manufacturer had assessed this $12,000 against his

higher grade numbers, with a consequent increased cost for those numbers. Competition, however, prevented him from obtaining a proportionately higher selling price for the better grade.

When we consider that the knit goods industry is using two methods of cost-finding, both incorrect, which are diametrically opposite when reduced to the final unit cost, it is not surprising that conditions are unsatisfactory.

This question of costs is not one of merely academic interest. It is, as a little thought will show, a matter of real concern, for if costs are to be utilized to the greatest extent as guides to executive judgment, the cost of each article must be calculated so accurately as to reflect its individual status as a profit-earner.

From the standpoint of the individual manufacturer, the adoption of uniform cost methods merely marks the primary step in efficiency. Unquestionably, uniform costs mean the survival of the fit, or, in other words, the survival of the efficient. With a logical basis, however, on which to operate, and the knowledge that if a competitor is underselling it is because he is a better executive and has a more efficient mill, the manufacturer finds himself with something tangible to work upon. It then behooves him to study his own costs and determine just where he is lacking.

A lot has been said, written and done the past few years about efficiency in the metal working industries, and these industries are becoming more and more efficient. The average knit goods manufacturer will claim, and rightfully so, that his business is different. Yet this does not lessen in the slightest degree the fact that the knitting business is just as susceptible to installation of efficiency methods as is any other line.

A production system, to prove thoroughly effective, should cover a number of points. It must insure that stocks are maintained at certain limits, such limits to be set with a view to the demand during past periods. It must consider the money tied up in carrying raw material, cloth stock, goods in process and finished stock. It must consider the time required to replace that which is withdrawn. It must minimize the lost time factor of the knitting machines. It must insure a sufficiently well balanced stock in process in the finishing departments to obtain the maximum amount of machine and operator efficiency. It must insure all of these and more. Yet this particular phase of manufacturing in the knitting business receives less attention than any other.

The ordinary mill carries some of its yarn from three to six months before using it. A large per cent of the cloth is frequently carried over from one season to another, due to the prevailing custom of allowing the cutting or finishing overseer to determine the cloth requirements. Following the sequence of operations, we find the finishing department benches piled ceiling high with goods in process, and so on into the finished stock, with its over-supply of some numbers and shortages on others.

Reducing the queries to figures, how many manufacturers are able to produce $300,000 a year with a maximum yarn stock of $10,000 to $12,000? With a maximum cloth stock of $8,000 or $10,000? With a maximum finished stock that will enable them to turn their money over three or four times a year and eliminate the shortage evil? How many are assured that all goods will be delivered to finished stock one week after cutting? All of these are entirely possible and at the same time insure a sufficiently well balanced stock of goods in process to eliminate any loss of time on the part of the operators or machines waiting for work.

It is an admitted fact that the knit goods manufacturer is slower in deliveries than any other class. Also admittedly the fact that the business is seasonable allows a reasonable excuse. There is, however, one underwear concern in this country, dealing with the retailer direct, that has built up a $2,000,000-a-year business, due almost entirely to the fact that it was able to deliver goods on promised dates and was in this way able to take the business from its competitors. Needless to say, this concern has realized the possibilities of and has adopted scientific production methods. What one manufacturer has accomplished is possible for another.

Next in importance, and just as essential, in order to approach ideal manufacturing conditions, comes the need for incentives to the operators. Local conditions undoubtedly govern this phase of manufacturing to a considerable extent, due to labor difficulties in some sections. There is little need to emphasize to you the importance or value of piecework or bonus method of wage payment. The fact that the piecework method is so widely used throughout the industry proves that you appreciate the advantage of this idea. Very few underwear concerns, however, are at present using wage incentives in all departments of their business.

Let us consider the operations in their natural sequence: The day-work wage is common in the winding department, yet this operation offers an exceptional field for piecework. Here the simple unit of pound may be used. To show the possibilities on this operation, I would mention the case of a concern I served some years ago. The winding girls in this plant were receiving $4 a week. By speeding up the machines, forcing the girls to tend three sides instead of two, and installing piecework, we obtained a cut in the labor cost ranging from 40 to 80 per cent, and enabled the girls to increase their earnings to seven or eight dollars a week.

Piecework in the knitting department, while common in the hosiery business, is the exception in the underwear. The idea that an increase in poor cloth would follow any speeding up of operators has apparently prevented the majority of manufacturers from installing an incentive on this operation. By the use, however, of a supplementary bonus scheme for a decrease in poor cloth, it is possible to reduce this latter factor to a minimum and at the same time receive a maximum production. I have also found that the ordinary knitting department overseer overlooks the matter of machine speeds. I have found it possible, for instance, to increase the speed of an ordinary latch needle machine, running on mediuum cloth, from 18 r. p. m. to 37 r. p. m. and obtain a lower percentage of poor cloth.

Washing and drying have apparently offered prohibitive difficulties owing to the inability to determine an equitable unit on which to base a rate. I have recently served a concern, however, whereby the standardization of bleaches, with a consequent standardization of time and the installation of a bonus scheme, based on the ratio of one class of goods to another, we were able to produce an average of 8,000 pounds of cloth a week with two men. Prior to the installation of this scheme there were six men in the department. I might say, in passing, that some mechani-

cal changes were necessary in order to accomplish this, but these will be paid for within a few months by the saving in labor and allow a handosme saving subsequent to that time.

The laying out, marking and cutting of cloth, with an additional bonus for decrease in waste, has proved thoroughly effective when performed by piecework.

Summarizing briefly the formula for increasing labor efficiency may be expressed in a few words—time and motion study and the standardization of performances.

Before closing I want to say a few words about the general condition of the knit goods industry from a profit or loss point of view. In other words, how does your business compare as a profit-earner with other industries? First, let us consider what a satisfactory return would be. If we were to consult the manufacturer of steel, he would tell us that a profit of from 50 to 75 per cent of the gross sales would be satisfactory. This business, however, is hardly a typical industry from a manufacturing point of view. There are many manufacturers engaged in producing special or patented articles who might make even larger profits than are to be found in the steel business The average manufacturer engaged in the manufacture of a staple line, however, considers 12 to 15 per cent on the gross adequate. This, under ordinary circumstances, would represent from 16 to 20 per cent on the capital invested.

From this we should deduct the 6 per cent which capital can earn in natural investments, leaving about 12 per cent to be secured in return for the risk which is taken and the extra effort expended by the man who devotes his capital to manufacturing. Admitting that this would be an adequate return, let us compare this with the facts as they exist in your business and you will admit that some action is necessary.

It is a difficult matter to obtain statistics regarding the profits accruing from any given branch of industry, as the majority of manufacturers keep this to themselves for obvious reasons. From statistics which are available, however—and our own personal experience has substantiated them to a greater or less extent—we understand that of the 1,076 knit goods manufacturers, capitalized at over $10,000, in this country, only about 15 per cent are paying regular dividends. In other words, 85 per cent of the knit goods manufacturers are not receiving the 6 per cent which their capital would return were it invested in stocks or bonds. From this it would seem that the necessity for discovering some means of increasing your profits is a vital one. As this condition has been caused by unintelligent competition, the only way to remove the condition is to correct the cause, and this can only be accomplished by uniform cost-finding methods.

A KNITTING EXPERIENCE.

EDITOR COTTON:

I noted in a recent issue of COTTON an article on the use of No. 26's yarn on a 12 cut machine. I once had a little experience along a similar line.

I once took charge of a knitting department in a mill making ladies' lace bottom and knee cuff union suits. These suits were made from both carded cotton yarn and lisle yarn. Upon examination I found they were using 12 cut cylinder and dial machines with 36 gage needles. No. 26's carded cotton and 30's lisle yarn were the material used.

In the preparation of the lisle garment, it took about 4½ pounds of yarn to the dozen garments, but because of the necessity of meeting competitive prices, it was necessary to cut this to 3¼ pounds. The cloth had formerly been set to 26 and 28 stitches, and to cut an average of 1 pound to the dozen, meant to cut the stitch down to about 22. I knew this would make the cloth look a trifle "slazy," but if it could run at 26 stitches I could not see why it could not run at 22, so I cut one machine down to 22 stitches, evened up the cams, and ran several yards of the cloth. After this had been examined, we prepared a roll and ran it through the bleaching department to see how it would look when finished. After bleaching and finishing we found that to every appearance it looked just as good as the 26 stitch cloth. In two weeks time I had the room running at 22 stitches entirely, with an average amount of yarn used of 3 pounds 9 ounces a dozen.

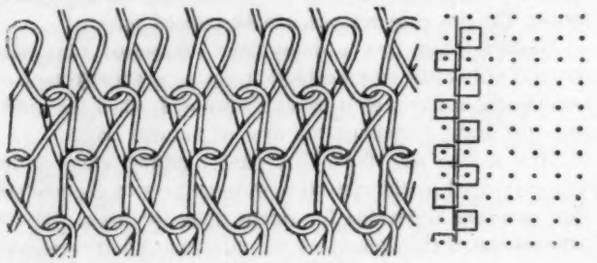
Come on brother knitters and tell us some more of the kinks. It is the little things that count and when we get up against it, we want to know them.

"Boss Knitter." (North Carolina.)

WARP KNITTING.

BY HENRY K. DICK.

Few manufacturers in this country have investigated the many advantages of warp knitting. Some may never have heard of this type of knitting. Warp knit fabrics have a large variety of uses owing, no doubt, to the fact that a large number of designs can be produced. For shawls, wraps, sweaters, scarfs, gloves and lace, the warp fabric is a very suitable one. From the term warp knit, a suggestion is given to the manner in which this fabric is constructed. In woven fabrics we have two sets of threads crossing each other at right angles, the threads running lengthwise of the fabric are termed warp, and the crossing threads are called weft or filling. In ordinary knitting, the thread



PLAIN WARP OR DENBIGH.

forming the loops runs horizontally across the fabric. In warp knitting we have a different system of forming a loop fabric. We have a warp analogous to the warp in the woven fabric, with a number of threads equal to the number of needles in the machine. The fabric is formed by the interlooping of these parallel threads, one row of loops being formed simultaneously.

Warp and ordinary knitting differ in the manner in which the new loops are formed. The row of loops on warp knitting results from the distribution in a pre-determined order of each of the numerous warp threads under and over one or more needles of the machine. The fundamental and indispensable parts for forming the loops in warp looms are the needles, sinkers, presser and guides.

The device for carrying the threads is called the warp mechanism. The needles may be either of the spring or latch needle types. The sinkers are of simple design but are similar in character to the type found on spring needle frames. Instead of having an individual motion as in ordinary knitting, they are fixed and move together all at the same time, in order to slip the loops on the needles. The presser closes the barbs of the needles while the old loops are knocked off.

The warp mechanism has no duplicate part in the ordinary machine. This mechanism has a vertical as well as a horizontal motion for the purpose of laying the threads under and over the required needles. The tension applied to the fabric plays an important part, and governs the size of the loop and the quality of the fabric.

Warp fabrics may be classed under two primary heads, close warp and open warp. The former is made with a full set of threads, one thread to every needle and the loops have a sideways movement every course, to the right and left alternately. Open warp fabrics are made so that the sideways motion only takes place at intervals, thus producing open effects.

Plain Warp Knitting. This is made with one guide bar drawn in with a number of threads equal to the number of needles employed in the fabric. The formation of the loop is made by carrying the thread under one needle to the right and back over same needle to the left at one course, and under one needle to the left and back over same needle to the right. This simple warp stitch can easily be demonstrated on a flat machine, using one needle bed. Using a small number of threads with the same number of needles, this stitch can be made by operating the needles by hand. By following out the motions necessary to form the plain warp stitch, which is the base of all warp fabrics, the construction of warp fabrics can be readily understood.

Single Vandyke. The guide bar is threaded as for plain warp and each guide laps its thread over one needle in the same direction for a number of courses and back again in the same direction.

Plain Cord, Double Denbigh, Double Vandyke, Crepe, Tuck, Shawl Fringes, and crochet designs for shawls and warps are a few of the standard fabrics produced on the warp looms.

While one warp loom will not make all types of warp designs, still the versatility of the machine commends itself to the manufacturer of knitted specialties. Looms are built for special fabrics, the name of the loom denoting for what types of fabrics the loom is suitable. In a later article these different designs and types of fabrics will be taken up more in detail.

Dyeing, Bleaching and Finishing.

IMPROVED METHODS IN HANDLING AND DYEING.

BY LOUIS J. MATOS, PH. D.

The handling of cotton in the several stages of its manufacture is so closely related to the operation of dyeing in the corresponding stage that to give consideration to one without discussing the other is practically impossible, and as proper handling has much to do with successful dyeing results, the two propositions will be treated jointly.

Modern cotton dyeing dates from the period when mechanical apparatus and machines began to gradually replace hand work, and not, as is usually supposed, when the artificial dyes began to replace the dyes of natural origin.

It is a long step from that remote period when cotton was only dyed in the raw state in open tubs to the modern high pressure apparatus for warps upon the beam, but the gradual stages through which the intervening improvements were made show the constant application of thought of many men leading towards that final triumph that enables the cotton manufacturer of today to accomplish in a short time that which he or his predecessor barely dreamed of.

The purpose of this paper is not to enlarge upon the merits of any system of dyeing, but rather to point out the advantages that accrue to cotton mills doing their own dyeing by adopting processes that will reduce the time and labor elements in handling cotton in the preparatory stages.

Raw cotton dyeing has advanced gradually along two broad lines—mechanical and chemical. The former comprehends only the manufacturing processes; the latter the dyeing proper.

Presented before the National Association of Cotton Manufacturers.

Formerly and in the olden times cotton was most commonly dyed in the piece, and in very olden times in short lengths only, except in case of narrow widths, when the lengths were correspondingly increased.

The actual process was to immerse the entire piece of goods to be dyed quite within the boiling dye liquor and work it around until it had taken up the amount of color to give it the depth of shade desired by the dyer.

In olden times shade matching was not the art that it is today.

Next we have the desire to produce effects of various kinds that led to the coloring of yarns before weaving, and this gave rise to the art of skein dyeing; and as the skill of the dyer increased with time, so in a corresponding way the ambitions of the textile designer increased, with the result that more pretentious patterns were developed.

As the art of spinning advanced, so in a measure the ability of producing colored threads from previously dyed raw cotton increased, and this gave rise to the widely extended practice of raw stock dyeing.

Warp dyeing is comparatively a recent development of the cotton dyeing industry. In former times warps were made from dyed skeins exclusively, but in course of time means were devised for handling warps in dye kettles, so that almost any length could be taken care of properly.

Piece goods dyeing has not made the same relative advancement that other branches of cotton dyeing have, but the time will come when cotton piece goods dyeing will be revolutionized, and that levelness of shade, coupled with penetration, will be a matter of routine.

Raw stock dyeing is now a matter of dyeing in two ways—either by moving the loose cotton through a stationary volume of the dye liquor, as is done in the common open

dye tub by poling, or as is common in some of the well-known types of revolving dye machines; or by keeping the mass of cotton fiber in a fixed and immovable position, and causing the dye liquor to circulate regularly through the cotton by means of a force pump, as is common to those machines that are designated "pack system" machines.

Each of these two methods of dyeing possess their disadvantages. The former, in that it tends to an impairment of the condition of the cotton fiber to such an extent as to lower its spinning value, and in some instances to a wastefulness of the heat, especially in dyeing in the old types of stationary open kettles.

This method of dyeing, whatever the results might be as to shade or condition of the cotton, is also positively wasteful of the dye. Of course, it must be remembered that the open tub method of dyeing is a relic of the days when shades were fewer than they are today, and when logwood—always a cheap dyeware—was the principal coloring matter used in the cotton dye house.

While poleing in the open kettles and tumbling in rotary machines generally produced fairly even shades, this apparent advantage is offset by the amount of man-killing labor over the open tub.

The so-called pack system machines have revolutionized raw cotton dyeing, and at present it seems that this general method will hold its own for a long time to come, although it is possible that various improvements will constantly be made towards simplifying the machines and their appendages.

The principle of dyeing fixed masses of cotton or other loose fiber by circulating dye liquor is very old, but it is only during the last fifteen or twenty years that any attention has been given to the development of the idea, and this actually from manufacturers and dyers rather than from machine builders. This unusual condition of affairs is traced indirectly to commercial conditions of competition—the desire to eliminate, whenever possible, hand labor by the substitution of machines.

One of the disadvantages of the pack system is traceable directly to the human element and is the almost impossibility of packing the cotton so evenly and uniformly that unevenness is eliminated. At times leads will form through which the dye liquor circulates with greater freedom and there causing much heavier shades than where the dye liquor encounters greater resistance. This condition appears to be attracting the attention of inventors who may in time overcome this trouble.

The pack system of dyeing, by whatever name known, however, has come to stay, and must be accepted by all progressive dyers as the last word when maximum output at the lowest possible cost is desired, not only lowest cost for handling, but for the greatest saving in dyeing, due directly to the relatively small volume of dye liquor necessary for a given weight of cotton to be dyed—the spent dye liquor being, in the great majority of instances, of no use to serve as a "Standing Kettle" about which dyers are so much concerned when dyeing in open kettles.

The following figures from practice show the varying amounts of dye liquor required for circulation in average pack-system machines:

1.	150 lbs. Cotton	(Direct)	160 gals. liquor
2.	140 lbs. Cotton	"	150 gals. liquor
3.	240 lbs. Cotton	"	200 gals. liquor
4.	200 lbs. Cotton	(Developed)	120 gals. liquor
5.	200 lbs. Cotton	"	100 gals. liquor
6.	200 lbs. Cotton	(Direct)	200 gals. liquor
7.	140 lbs. Cotton	(Aftertreated)	120 gals. liquor
8.	150 lbs. Cotton	(Direct)	160 gals. liquor
9.	100 lbs. Cotton	"	150 gals. liquor
10.	150 lbs. Cotton	"	180 gals. liquor
11.	150 lbs. Cotton	"	180 gals. liquor
12.	100 lbs. Cotton	"	100 gals. liquor
13.	90 lbs. Cotton	"	100 gals. liquor
14.	350 lbs. Cotton	"	300 gals. liquor

When it is considered that one pound of cotton in almost any form, when dyed in some such machine, requires only one gallon of dye liquor, as against three gallons of water usually required for dyeing in the open kettle, the saving is to be noticed in two directions—less steam to bring the temperature up to the boil for a given quantity of cotton, and a saving in water for washing, as the washing is always done before the removal of the dyed cotton.

The most serious problem of washing textiles is usually to be settled as soon as superintendents and dyers give some attention to it, and not leave the "washing" to those who only proceed along the lines of "guesswork." It is perhaps not thoroughly known, for a given weight of cotton containing a definite amount of impurities to be removed, that if we wash twice with a given quantity of water we will reduce the amount of impurities more than if we wash only once with double the volume of water. Suppose we have 500 pounds of cotton, being dyed in 500 gallons of water, after the dyeing and running off of the spent dye liquor, there would be held mechanically by the cotton 60 to 70 gallons of liquor, and which would contain one-seventh of the original amount of chemicals—except the amount of the dyestuff—used in dyeing; and if this residual one-seventh impurity is further reduced by a further washing with 500 gallons of water, we have as a final residue one-seventh of one-seventh, or one-forty-ninth of the original substance that should be removed. This residual one-forty-ninth is so small a quantity that for ordinary manufacturing purposes it may be neglected.

The entire washing proposition is more important to a mill and should be given more serious thought and consideration than it usually receives.

Cotton skein yarn dyeing has not progressed much beyond the ordinary open kettle method of dyeing, the skeins being manipulated by hand, but it is safe to assert that rotary skein dyeing machines will ultimately prevail, the packing system not likely to prove universally applicable for such work on account of mechanical reasons that appear to be extremely difficult to overcome, notably the tendency to form leads resulting in uneven shades.

Warps, however, always a most interesting branch of cotton dyeing, is in the revolutionary or transition period, and with the great attention that has been given to it during the past few years, both in this country and abroad, leads me to believe that the perfect dyeing machine for cotton in this form is not far distant. The idea of dyeing a heavily wound mass of cotton thread on a hollow and perforated spool is old, but it has taken both time and courage to persist in developing the idea so that it might become technically practical. Today there are several such machines

on the market, especially constructed for this class of work, and the results obtained indicate that they are no longer experiments.

By dyeing cotton warps in such machines a very great saving is effected, not only in direct labor and handling of the warps in this condition, and which contributes to a very much better fabric, but as the warps are correctly wound on the dyeing spool at a uniform tension, and put through the slasher and wound on to the loom beam at the same tension, it cannot be otherwise but that the warps are practically perfect. On the other hand, however, the cost of such modern warp dyeing machines is so great that many mills defer buying them, preferring to continue using the old Scotch tubs or long chain systems, and hoping that the unforeseen may not occur to impair the quality of the dyeing or condition of the warps.

The dyeing of cones and cops, a very favorite method of dyeing cotton in many European mills, is not likely to become at all popular in American mills on account of the higher labor cost in handling the cotton in this condition; and, besides, we entertain the idea that by handling the skein dyed cotton, as is customary in American mills at present, we are able to obtain a more uniform run of cops than each lot of cops from a specially constructed dyeing machine is liable to turn out. It is generally accidental when two succeeding lots of cops from the same cop dyeing machine, dyed with the same dyestuffs, are of exactly the same depth of shade. When standing kettle dyeing is undertaken, the final conditions are even worse. For cotton mills of small output, such dyeing machines are without doubt very good, but, time considered, the output of dyeing is restricted and out of proportion to the cost of the installations.

Cotton piece goods dyeing resolves itself into three broad methods—jig dyeing, continuous machine dyeing, and padding machine dyeing—and, of course, each of these methods is directly applicable for solid colors only.

Jig dyeing is deservedly popular on account of the ease of control and regularity of quality of output, besides being easily adaptable to nearly all classes of cotton goods and groups of dyestuffs. Dyeing with certain classes of colors, jigs must be constructed to cope with the new conditions imposed by the chemical principles involved in the use of the newer dyes, and any attempt to make improvised makeshifts will only lead to disappointments. In this connection it might be well for us to bear in mind that the large color works have elaborate experimental dyehouses fully equiped with commercial size apparatus in order to try out their new discoveries, and to devise proper methods for their use, in connection with the combined skill of both engineers and chemists. These color works also have their own machine shops, to be called upon for special machines or apparatus to meet pending requirements demanded by the properties of new dyes.

When new ideas are thus developed, it does not imply that other workers or local conditions existing elsewhere may not modify the method originally devised in the color works, but it is quite fair to presume that their recommendation may prove of value as a means of preliminary trials of a new dye in a given mill.

Jig dyeing is modified by the introduction of "skys" or continuous oxidizing frames, as shown in Fig. 1, to permit the dyed fabric to obtain the full benefit of the oxidizing action of the air. Jigs are also provided with carefully balanced, heavy squeeze rollers, to introduce which, in many instances, required considerable diplomacy on the part of the dyestuff demonstrator to overcome objections on the part of the dyer. The gradual introduction of squeeze rollers on all jigs is now only a matter of a short time. Submerged rollers and spreaders to keep the cloth completely beneath the surface of the dye liquor is a mat-

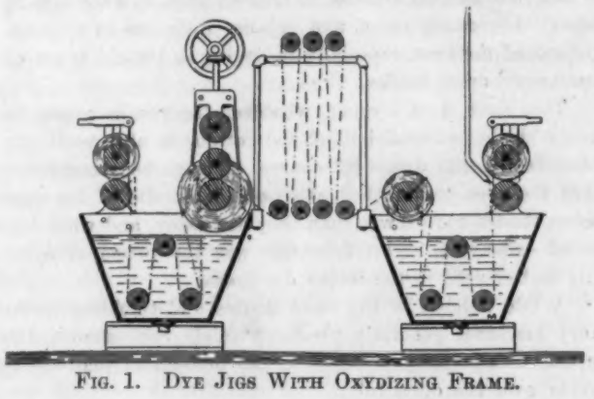


FIG. 1. DYE JIGS WITH OXYDIZING FRAME.

ter of common note in cotton piece dyehouses using regularly immedial and many vat colors.

The continuous machine is not as common in this country as it should be. It is one apparatus that permits of a large output. Ordinarily constructed to admit of from two to three or five compartments, as shown in Fig. 2, each of which is provided with a pair of squeezing rollers, the upper one of each pair being generally coated with rubber. Immediately preceding each nip is generally mounted a spreader to keep the cloth smooth and free from wrinkles.

Owing to the tendency of the strength of the dye liquor to vary, due to condensation, it is thought best to provide for heating the liquor by means of indirect steam, together with a steady inflow of stock dye liquor from overhead tanks, thus permitting, after the machine is started, a uniform shade to be produced upon a large quantity of cloth.

The amount of the stock dye liquor allowed to flow into the first compartment corresponds to the amount of liquor

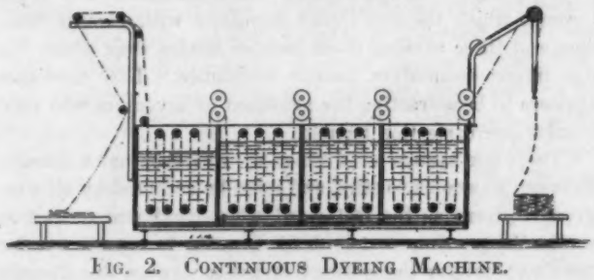


FIG. 2. CONTINUOUS DYEING MACHINE.

taken up by the cloth and mechanically retained after passing the last nip. When once the speed of the machine and rate of inflow is fixed, the process is almost continuously automatic. As a rule, the first compartment is for wetting out or preparing the cloth for dyeing, and for the general run of staple shades, such as black, brown, dark blue, etc., dyed with diamine or direct colors, this first compartment is charged with soda ash only.

The continuous dyeing machine is also used for the well-known diazotizing and developing process. The construction is somewhat modified, however, to meet the different

conditions, and usually has only three compartments, as shown in Fig. 3. After the pieces have been previously dyed and washed on another machine, they are transported to the diazotizing and developing apparatus, the first compartment of which is the diazotizing box (A), containing the nitrite of soda and hydrochloric acid, both of which solutions are fed from stock tanks mounted overhead.

The second compartment (B) is a rinsing box, containing acidulated water, and the third (C) is the developing box, containing the developer found best suited for the shade to be dyed, and which is replenished from an overhead tank. Each compartment is separated from the other

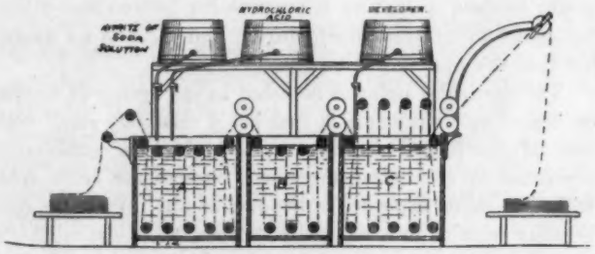


FIG. 3. APPARATUS FOR DIAZOTIZING AND DEVELOPING.

by a heavy nip. Where continuous diazotizing is practiced, the location of the machine can be conveniently placed in a boxed-off corner of the dyehouse and provided with a suitably constructed ventilator leading from a hood suspended over the diazotizing tank, so that the fumes may be led to the open air.

Paranitraniline Red. Closely related to the diazotizing and developing process above described is the so-called paranitraniline red process, which, while not requiring any particular type of dyeing machine, yet it has been found best to make use of a machine specially constructed for this purpose. The goods are first prepared or "mordanted" by passing through a beta naphtol prepare, after which they should be made absolutely dry, then passed through a padding machine constructed as shown in the accompanying sketch, where the first compartment consists of a trough containing two small submerged rollers which keep the cloth below the surface of the diazotized paranitraniline solution. After leaving the second roller, the cloth is passed between a moderately heavy nip; subsequently given an air passage; finally given a thorough washing with two jets of water, then a nip, and then through two washing compartments and final nip, and terminated with a plaiting down; the usual soap boiling and rinsing folliws.

Dyeing in the Padding Machine is becoming better understood in this country, and while a number of piece goods mills employ it, yet there is room for its further extension. It permits of the production of a very great output, and where the fabric to be dyed is not heavy, very excellent results, both in penetration and levelness, are obtained. Two forms of padding machines are common—one for the direct padding in one short passage; the other for a slightly slower, but with a greater amount of fabric in the dye liquor. The first machine, shown in Fig. 4, consists of three superposed rollers taking the dry cloth from the small submerged roller in the color box, given two nips and plaited down. This machine serves for almost every variety of light and medium shades. By means of an overhead stock tank for the dye liquor, and in which is a closed steam coil, the stock liquor can be made up in sufficient quantity for a morning or a day's run. This method permits of a very large output of uniform shades. In usual mill practice, knowing beforehand the amount of cloth to be dyed, the padder prepares only sufficient dye liquor for a day's run or to dye the amount of cloth a given shade. On standard goods, running for weeks at a time, no difficulty is encountered in making successive fresh batches of color each day.

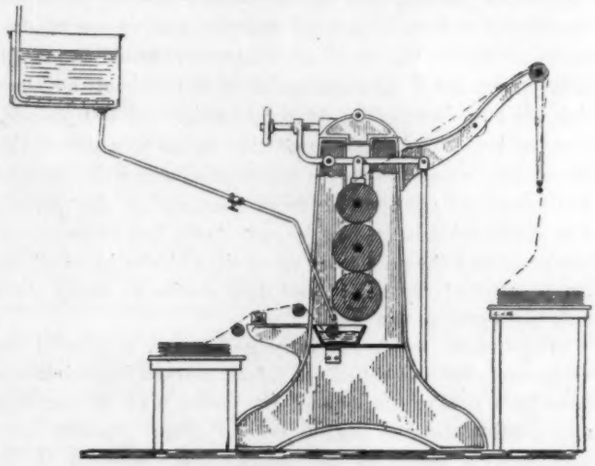


FIG. 4. PADDING MACHINE.

The second form of apparatus previously alluded to, and shown in Fig. 5, provides for a box containing a double row of submerged rollers similar to a single compartment of a continuous dyeing machine, through which the cloth passes, thereby being given about eight up-and-down passages through a large volume of dye liquor (instead of one passage with a single submerged roller, as in the former case). This modification of the machine permits of very good penetration and a more thorough fixation of the dye by dyeing than squeezing with the single roll padder. This method has been called the "Jigger Dyeing Method,"

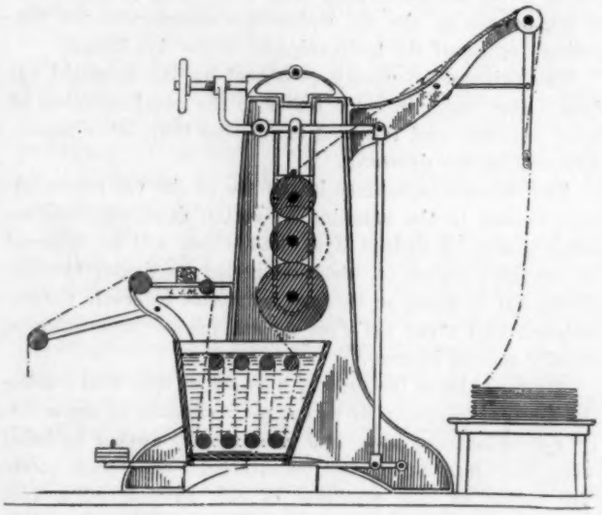


FIG. 5. JIGGER PADDING MACHINE.

although there seems to be no connection between the standard jigger and such a machine. The goods are prepared for dyeing and passed through the machine, plaited down or rinsed before plaiting. In case of either of the above two machines, one passage only is employed, which means that the shade and dye formula can be carefully worked out beforehand.

The above methods of dyeing apply equally to the direct or diamine colors as well as to the sulphur or immedial colors. In dyeing the latter, it becomes necessary to make use of the oxidizing action of the atmosphere, and dyers have found it advantageous to construct over the machine oxidizing frames consisting of a series of rollers in order that an air passage can be conveniently given. So-called vat dyeing is done in a small way by making use of dye kettles similar in almost all particulars to the old-fashioned cloth dyeing machines and capable of handling at one time eight or ten pieces of an aggregate weight of 400 pounds, more or less. The wooden partition serves to separate the pieces from contact with the steam pipe, and which always facilitates the addition of fresh portions of dye liquor. The pieces are usually dyed in rope form, and consequently this precluded the possibility of medium shades in handling. As a matter of fact, black and dark shades on cheap cloth only are dyed in this way.

Vat Colors. Since the introduction and wonderful development of the so-called vat colors, marked improvements have been noticed throughout the entire field of handling and manipulation of cotton goods. These changes have been brought about by the peculiar characteristics of the various classes of colors that belong to the vat dyeing group, and which differ so much from other classes of dyes heretofore used that they stand in a class by themselves.

The dye solutions of such colors are known to chemists as "reduced" solutions—that is, the dyestuff itself has been subjected to the action of chemical reducing agents such as hydrosulphite of soda, and which, when in solution, alters chemically the condition of the dyebath, imparting at the same time to the dye liquor a color entirely different from that of the ultimate color of the fabric when dyed. Upon immersing cotton in such a reduced chemical solution for a short time, then squeezing, washing, and afterwards exposing to the air, the proper color is restored by the action of the oxygen of the air, which thus counteracts the "reducing" action of the hydrosulphite in the dye liquor.

The principal property possessed by the so-called vat dyes is that they are much faster to the usual influence of wear, exposure and repeated laundering than other heretofore well-known dyestuffs.

The writer's experience in the use of the vat colors has been limited to the handling of cotton dyed with the so-called group of hydron dyes, and which will be referred to for the purpose of illustrating this particular type of colors, but in doing so he does not desire to create the impression that other vat dyes do not possess properties of equally general interest.

Hydron blue is the type of a group of dyes that possess the peculiar property of prolonged resistance to the action of hypochlorite of soda, and consequently appear to be of particular interest in the manufacture of cotton goods. The shades of blue produced by this dyestuff when dyed heavy and full upon cotton, unlike time-honored indigo, remain upon the cotton where the dye puts them, and do not bleed off or stain adjacent whites, as is one of the characteristics of indigo.

The group of dyes represented by the hydron may be dyed in all existing forms of machines, but it has been found an advantage to recommend slight modifications where such alterations do not interfere with the usual working of the dyehouse. Under ordinary conditions, rotating raw stock dyeing machines, or dyeing machines constructed in accordance with the pack system ideas, necessitate no other requirements. On the other hand, skein dyeing appears to offer a chronic disadvantage of requiring the use of bent iron sticks in order to keep the skeins well beneath the surface of the dye bath. On the other hand, warps can be dyed on the long chain system or in any suitable warp dyeing machine on account of the relatively small surface of the dye bath exposed to the atmosphere, or an indigo warp dyeing machine may be modified for the same purpose.

Beam dyeing machines, however, have served a very useful purpose in making it possible for hydron and other vat colors to be dyed satisfactorily, and there is no doubt but that this system will be greatly extended.

The particular point to be noted in the dyeing of warps on beams with vat colors is that but a relatively small volume of dye liquor is necessary, and which is continually circulated in alternating directions through the beam, and with little or no exposure to the outside air. While the dye solution remains in a reduced condition, no oxidation takes place, owing to absence of contact with the air, and perfect dyeing consequently progresses. After the circulation of the dye liquor and sufficient time has elapsed, and the excess of liquor drawn off, then oxidation may take place advantageously, as, indeed, it must in order to fix the color and develop the ultimate shade.

It seems to the writer that as dyeing machine builders study the dyeing details of the processes necessary to apply the modern dyestuffs to cotton, the apparent difficulties now encountered in dyeing will be rapidly overcome.

Having briefly outlined the principle methods of dyeing cotton, it only remains to direct attention to the fact that even the simplest process is essentially a chemical operation, and to secure the results having the highest commercial value, it becomes necessary that every advantage be taken to place at the command of the dyer those facilities that modern science points out as essential to good work.

In the matter of dyes it is rapidly becoming a subject of prime consideration on the part of the manufacturer to employ those that have been found best suited to meet the requirements and conditions imposed by latter-day commercial demands.

In former days, and not so many years ago, almost any colored fabric, if prettily woven or printed, would find a ready sale; but at the present day—owing to broadly conducted campaigns of education—the ultimate buyer is the creator of the demands, which must be met by the mill man, and in the last analysis it devolves upon the dyer to keep abreast of modern color achievements and dye his goods to fully meet the conditions imposed.

Announcement was recently made at New Bedford, Mass., that the Rotch Mills, at the south end, has won the blue ribbon offered by the officials of the New England Cotton Yarn Company for the mill under their supervision which produced the greatest and best quality of goods. This prize was offered several months ago, and since that time every branch of this company has been working its hardest to acquire the distinction of being the best producing mill. The trophy has been turned over by the workmen of the mill to Superintendent William Harrop, who, they claim, deserves the entire credit for winning the prize.

IMPERMEABLE SIZE FOR PRINTING CLOTHS.

While much attention has been paid to the rendering of fabrics relatively impervious to water for most purposes, not much attention has been given to imparting the like property for the purposes of printing. There are circumstances in printing in which the changed character of the fabric would be a useful property. According to the texture of the cloth, the pressure exerted during printing, and the depth of the engraving on the printing surface, the colors penetrate more or less, and may even appear on the other side of the fabric. There is really no great inconvenience connected with this feature of the matter so long as the design is printed on both sides of cloth by a double machine; but when it is desired to apply differing designs, or if a double machine is not available, it becomes necessary to prevent the colors from penetrating the cloth. This problem comes greatly into evidence especially in the case of printing with hydrosulphite by discharge on indigo grounds. Working with the perrotine machine, it suffices for the purpose to thicken the colors or the discharge paste with gum or a size with sulphate of barium. On the other hand, in the case of printing by roller, the circumstances are less favorable and necessitate a previous impermeabilization of the fabric. This impermeabilization should be of a temporary character, with nothing really in common with the methods practiced so largely relying on the use of fatty bodies, paraffin, or rubber, to give durable results. Moreover, these bodies do not admit of the cloth to which they have been applied being moistened by the printing pastes, and so the colors cannot be properly fixed thereon. The desired object should be attained by the application of a size or a finish that water can moisten, but that opposes the penetration of the color to the other side of the cloth.

There are numerous colloidal precipitates which can be deposited on the fiber which respond to this dual requirement. The crystalloids do not answer the purpose. The colloids capable of service may be grouped in this fashion: (1) Alumina and hydrate of tin; their fatty or resinous soaps, and their combinations with silica and tungstic acid. (2) Gelatine and glue rendered insoluble by chromic acid, alum, and the aldehydes. (3) Cellulose precipitated from Schweitzer's reagent. Colloidal alumina: Crum obtained this body about the middle of the last century. He prepared the diacetate of alumina, and this, in presence of much water and heated, furnishes by hydrolosis a colloidal solution (hydrosol) of almina, which is precipitated in a gelatinous form by the addition of a mineral acid, especially sulphuric acid. The salt obtained does not exercise a destructive effect on coloring matters, and it is insoluble in water.

Graham obtained another variety of hydrosol of alumina; it dialyses a solution of aluminium chloride with an addition of alumina; but his hydrosol was very unstable and attacked coloring matters. Weber has vainly attempted to replace, in Crum's method, the acetate by other salts of alumina. Stannic acid: According to Zsigmondy, stannous chloride in very dilute solution oxidized by the air, gives a hydrosol after the addition of a small amount of ammonia. It is also possible to hydrolyse stannic chloride in presence of much water and a small proportion of ammonia. By desiccation the hydrosol gives a vitreous mass.

Colloidal salts of organic acids: These are formed, for example, by the soaps of the family of iron, which are precipitated in the form of microscopical spheres. In the neighborhood of their point of fusion, which is very low, they give viscous and ductile liquid which attaches itself very readily to the vegetable fibers. Tannin acts in a similar manner, because it is a body of high molecular weight, and, examined microscopically and cryoscopically, resembles the colloids.

Silica: Kuhn obtained a hydrosol of silica by precipitating gelatinous silica (hydrochloric acid and silicate of soda) and placing it appropriately under the influence of a current of water to remove the foreign salts, and finally dissolving the silica by prolonged boiling with much water. The dissolved silica, when precipitated by sulphuric acid, cannot be redissolved in pure water. Graham prepared colloidal silica by dialysis; the hydrosol thus prepared showed a slight acid reaction; by adding the quantity of potash required to effect neutralization, there is produced a new hydrosol (colli-silicate) which is more stable than the preceding one; carbonic acid and the carbontes separate the salt. Finally, it appears that colloidal silicates of alumina also exist.

Tungstic acid: The hydrosol is prepared by the action of dilute hydrochloric acid in slight excess of a 5 per cent solution of tungstate of soda, and submitting to dialysis. The purified acid is not coagulated either by acids or their salts, nor by alcohol. By desiccation it gives a vitreous mass which is extremely adhesive. There is known a tungstate of aluminium of a resinous consistency.

Insoluble gelatine: Gelatine may be made insoluble either by ordinary alum, or, better, by chrome alum and the various salts of the sequioxide of chrome, by chromic acid, and by the aldehyde, particularly formic aldehyde. In studying the behavior of gelatine in this aspect, Lumiere and Seyewitz conclude that (*a*) the compounds of ferric oxide, chromic oxide, and aluminium oxide form insoluble compounds with gelatine; in the case of chromic oxide, which is the most interesting, 3½ parts to 100 parts gelatine form the insoluble product, which is the more stable the less there is left of free acid; and (*b*) chromic acid and its salts render gelatine insoluble in the presence of light; and (*c*) chromic aldehyde acts upon gelatine either in the gaseous or the dissolved state.

Application of these colloidals to cotton: A work was published in 1825 by Schmieder on this subject, and from it is gathered that the author studied the reciprocal actions of gelatine, alum and soap. The cloth, plunged in a solution of gelatine (fish glue) and then in a solution of alum, does not become water-repellent, whereas, by employing a mixture of the two liquors, the cloth becomes able to hold water for a period of 24 hours. This difference in result may be explained in that, in the first case, the gelatine is manipulated in the presence of a large excess of alum, which, preserving its acid character, retards the insolubilization. On the other hand, in the second case, the gelatine-alum remains in colloidal solution in the liquor, from which it is absorbed by the cloth.

By plunging the cloth first into a solution of soap and then into one of alum, a medium degree of impermeabilization is realized. The aluminate of soap formed on the fiber becomes dissociated. It is a curious thing that inverse manipulation, which finds application today, is not men-

tioned by Schmieder. He obtained his best results with a mixture of three substances—glue, alum and soap. The solutions of each constituent were made in advance and admixed just before using—the soap, glue, and then the alum. Since, alum has been replaced by acetate of alumina, the cloth being impregnated with this and then passed through a solution of soap. Finally, other methods rely upon the use of soap and silicate of soda, fatty and resinous soaps of ammonia tungstates and formic aldehyde. It may be concluded, therefore, that it is possible to realize the impermeabilization necessary for the purposes of printing by incorporating with the fabric a precipitated colloidal exhibiting the following characteristics: It must not allow the color to filter through the cloth; it must not injure the color, and it should be removable by subsequent color.—*Textile Mercury.*

Practical Problems Discussed by Cotton's Readers

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so indorsed. This department is open to all. Suitable letters are paid for in cash.

SOME INTERESTING POINTS ON SLASHING.

EDITOR COTTON:

In your April issue I noticed an article signed "Wash," entitled "Why Warps Break at the Loom." The writer having had a long and varied experience on all kinds of warp preparation, from yarns of the coarsest numbers up to 200, and having slashed 150, being dressed on Brush dressers, will say that "Wash's" remarks are very good, but I cannot agree with him in his last clause, where it says that the drag roll should always be 3/16 inch in diameter larger than copper size rolls. That theory would be O. K. if "Wash" or anyone else were slashing in some mill where there was to be no changing from light sheets of yarn to others probably 50 per cent thicker or heavier. For instance, if the drag roll is 3/16 inch larger than size roll and one is running say 1750 ends of 30's and the tension of yarn was all that could be desired. Then if the next set to be put on machine called for 3100 ends of 12's yarn, does "Wash" mean to say that he could get good results without putting some more sheeting on his drag roll? I think from my experience he could not.

Again "Wash" claims that there should always be a slight and continuous amount of stretching of the yarn between the size and drag rolls. The writer says, no. Any stretching done takes place on the section beams before the yarn goes into size pot. As we all know that when cotton yarn gets wet with size or even water it does the opposite from stretching. I claim there is no set rule to govern the diameter of drag roll on any slasher, but experience teaches all the required changes of cloth on drag rolls. In some mills where one machine has to run several kinds of goods, the slasher tender keeps pieces of cloth all ready to put on or take off. According to "Wash's" claim, the yarn must be stretched continuously, but that cannot be done unless the drag roll is too large.

All there is to this is that a good slasher man must use good judgment. He can tell when starting up a new style of goods by putting his hand on the surface of the sheet of yarn whether he needs to put on or take off cloth; a heavy sheet of yarn needs more diameter to take up the slack,—for the reason that the copper size roller delivers it faster than it does a very thin sheet of yarn. "Wash" is correct about too much tension pulling the yarn nearly to the breaking point.

There is one more place where good warps are spoiled and that is between the drag roll and loom beam. I have seen on some slashers good nice work going over until it got to the beam, where, on account of the friction being too tight, the yarn was parting and going on at the same time.

There is still another thing about slashing I might mention. That is, laying in the yarn in the comb. Some men when starting up a set strike the pin comb at the back of the machine, getting all sizes of pins, probably eight ends in some dents and five ends in others. Then as they are run through they lay them in just as they come over. Then start up and put the presser roll on and expect it to make the beam of yarn even. Any warp slashed in a ridgy condition will give trouble at weaving. Also a loom beam or warp that is put on too hard will not weave off as good as one that has been laid in with the same amount of thread in each dent of the comb and with tension easy. Some men expect the spreading bars to even up a poor laid in warp on a slasher.

In reference to side shafts on a machine, I worked in one mill in Massachusetts where we had 10 slashers on heavy white work and good warps at that, and the drag rolls did all the pulling. I will say here that the preparation of warps in some mills is thought too little of, and no matter how good the yarn may be, it is ruined a good many times just as "Wash" has stated. Mack. (Georgia.)

A POINT FOR FINISHERS.

EDITOR COTTON:

There seems today an ever-growing demand from the trade for finished goods with that "clothy" unfinished feel and look that some finishers find it so difficult to obtain.

To obtain this finish many plans have been tried but so far as I am informed most finishers try to reach results from special sizes and size preparations and some have succeeded wonderfully well. However, it is not my purpose to detail here some special size or size formula, but rather to tell of something that I believe will aid any special size anyone may use.

I have found from experience that it is almost impossible to get this clothy feel without calendering on hot rolls though some claim to get good results from cold calendering and some without calendering at all. I believe that regardless of the size, the finish can be improved by a hot calender under moderate pressure, but for the fact that while the feel may undoubtedly be improved, yet the yarn is flattened and the face of the goods glossed, which so far as the looks go, makes the goods worse than before calendering. As it

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COTTON MACHINERY

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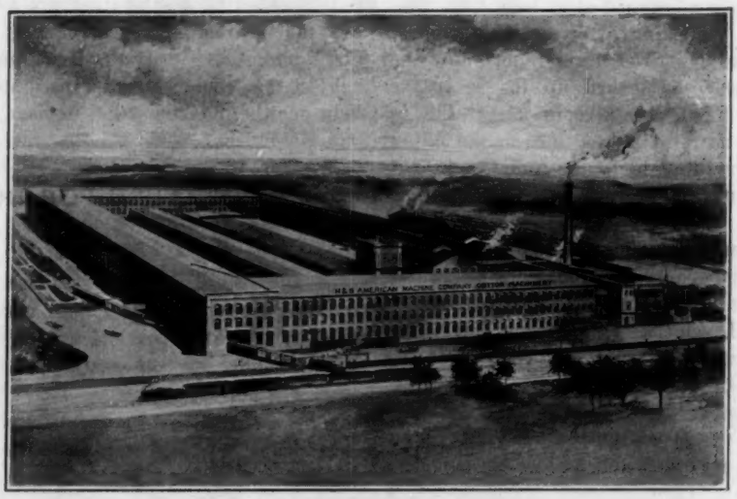
Card Room Machinery



Spinning Room Machinery

Twisters for Wet or Dry Work

With Band or Tape Drive

H. & B. AMERICAN MACHINE COMPANY

PAWTUCKET, R. I.

See announcement P. 139

takes both feel and looks to make "clothy" cloth there is still something to be desired.

Now raise the top calender roll, which is usually a husk roll or a combination of cotton and husk, and taking a wrench and screwing up the nuts on the bolts running through the bar beyond box in the frame and at the end of roll, so as to throw this top roll clear when the remaining rolls are together. Any finisher having a five or six roll calender in good shape will readily understand what I mean. Having the machine thus adjusted with the top roll a dead one, you may calender your goods with the requisite number of nips below this roll and by passing the goods around this dead roll and making the goods turn it, its weight while the goods are smooth upon it will pull the flattened yarn back into a cylindrical shape and destroy nearly or quite all of that slick laundry look that the other rolls have imparted. This, of course, is based upon the presumption that the goods were properly sized. It is only claimed for this method that it will improve and not produce a "clothy" finish.

It is, perhaps, needless to state that considerable care and judgment must be exercised in trying out this idea, due allowance being made in proportion to the toughness of the goods for the excessive stretch. Some very light goods one might be unable to handle from this cause and if the plan was used very extensively it would be necessary to have the mechanic replace the ordinary narrow strip usually sent out on the machine with a more substantial box or step.

I might further add that the goods should be left on the roll just as they came from calendar for at least 24 hours or until they have had time to thoroughly cool and set, otherwise a large portion of the desired result is lost. The tendency of the yarn will be to return to its flattened condition under contraction if unwound while hot.

Finisher. (Mississippi.)

THAT ACTUAL AVERAGE WEIGHT.

EDITOR COTTON:

Keeping the cloth near the standard weight in some mills is a constant struggle, while in others the cloth is seldom found to be over five points from the standard weight. The writer has also seen the cloth 40 to 50 points from standard in some mills. The weight of cloth is made to vary often from the standard in many mills by the weaver or fixer changing the diameter of the sand roll, which changes the number of picks slightly, and also by changing the pinion gear unknown to the overseer. In fact, I know of a case where the weavers had pinion gears cast and finished and paid for them themselves. This state of affairs cost the overseer his job and later the superintendent.

When the cloth is weighing "off" from the standard, who is to blame?

In most mills it is wrong to blame the carder, as in the majority of mills a certain hank roving is made for all the warp and filling yarn. In these mills different kinds of yarns are made from the same hank roving and all the changing is made in the ring and mule rooms. It is up to the superintendent to keep the cloth at the standard weight.

The superintendent should go into the cloth room every morning and get a report of the cloth, and not leave this to the overseers, because when the cloth is found to vary much from the standard, if the weaver has charge of keeping the cloth and it is on the heavy side, and he demands

from the overseers of the preceding processes to lighten out, they will in most cases answer that it is impossible to do this, for if they did there would be trouble with the help, owing to the poor stock being run, or excessive drafts.

What a superintendent should do when the cloth is heavy or light is to go at once to the looms where this style is woven and take a few cops from different boxes and size them, at the same time making an allowance of at least two numbers for the moisture in the filling after steaming, and if the filling is found to be right, the beam reports for the previous weeks should then be looked up to see if the beams have been heavy. If the beam report shows this to be so, the only thing to do is to lighten out on the filling for the present. If everything is found to be right the next question is, what is making the cloth weigh "off" from the standard?

Did you, reader, ever weigh an empty beam and compare the actual weight with that marked on the beam head? If you are in charge of a mill, try it, and there may be a surprise in store for you. Do not weigh only one, but weigh every one of them. Beam heads are often broken, and the weight of the beam is copied from another. Some overseers will mark all the empty beams 4 to 6 pounds lighter. This enables him to keep the yarn slightly on the heavy side, which helps his work to run well and besides the spoolers and warper tenders make more money, which makes it easier to get help.

Weigh the empty beams every little while. Very few superintendents do this because they never think of it, but many will appreciate this letter if they start the practice. Remember that making lighter filling to cover up such tricks is very costly. Some spinners will have a larger draft gear in the center of the room only and unknown to the superintendent. This is to keep the work running as well in the center of the room where the temperature is lowest.

Wash. New York.

WHAT ABOUT PROGRESSIVE FLAT SETTING?

EDITOR COTTON:

There are a great many carders to this day who employ the method known as progressive setting for setting their flats. Progressive setting is not a new idea, for this method of setting was employed when the stationary top cards were in use. When setting the tops in those days they were set so as to assume an angular position relative to the cylinder, as at the present time, which was the proper thing to do.

At that time the tops first acting upon the cotton were set to a .013 inch gauge, the middle tops, .012 of an inch and the front tops .011 of an inch. The only reason the writer can give for this idea is that some worsted carder conceived the idea that cotton could be treated the same as worsted.

There is a great deal of difference between cotton and worsted carding for the reason that the cotton staple never exceeds 2¼ inches in length, while worsted wool is sometimes 18 inches long, at least a part of it. We must set away at the part of the card first acting on the stock when running worsted for the reason that it gives the long fibers time to disentangle themselves and the treatment is not so severe, and no doubt many long fibers are protected from injury by this method when carding worsted.

In the case of carding cotton, I fail to see any benefit from progressive setting. In fact I have made test after test and in each case found the finished card sliver made from progressive setting more dirty and uneven in weight. I have found a variation of 8 grains to the yard from progressive setting, while with setting the flats at .010 of an inch gauge at every point I found a variation of only 4 grains.

In my judgment, there can be very little argument in favor of progressive setting, for the reason that when the flats first acting on the stock are set away from the cylinder, the carding surface is reduced, which accounts for the dirty and uneven sliver. However, I know of no other subject that could better be discussed in this department to help out the industry. Let us hear from other carders and superintendents.

Williams. (Mass.)

ONE CAUSE FOR DOUBLINGS.

EDITOR COTTON:

I suppose if you were to ask any superintendent or overseer where doublings were made, they would reply at once in the card room. I am going to recite an instance coming under my observation to show that at least once such was not the case.

We were having the worst spell of double roving that I remember to have ever seen. Scarcely a single piece of goods without hard places varying from a few picks of filling to whole quills that were so much oversize and so hard twisted as to wrinkle and curl all out of shape. The superintendent and everybody else were "on their heads." If I remember aright, the second hand in the card room was discharged, and the overseer, a good carder of long experience, was about ready to quit, yet doublings continued to come.

Finally, when the trouble was about at its worst, the cause was located. The boss spinner, in order to accommodate some very small operatives—this occurrence happening a number of years ago, before the age limit was applied—had let down or taken out his top creel board over the spinning frame and was setting all his roving in on the lower board. This made the roving thick and close together, especially in part of his room, where a coarse hank roving was being used. These roving ends were constantly breaking, up behind the rolls, and the broken ends were frequently blown or otherwise drawn down into the spinning rolls two and sometimes three together.

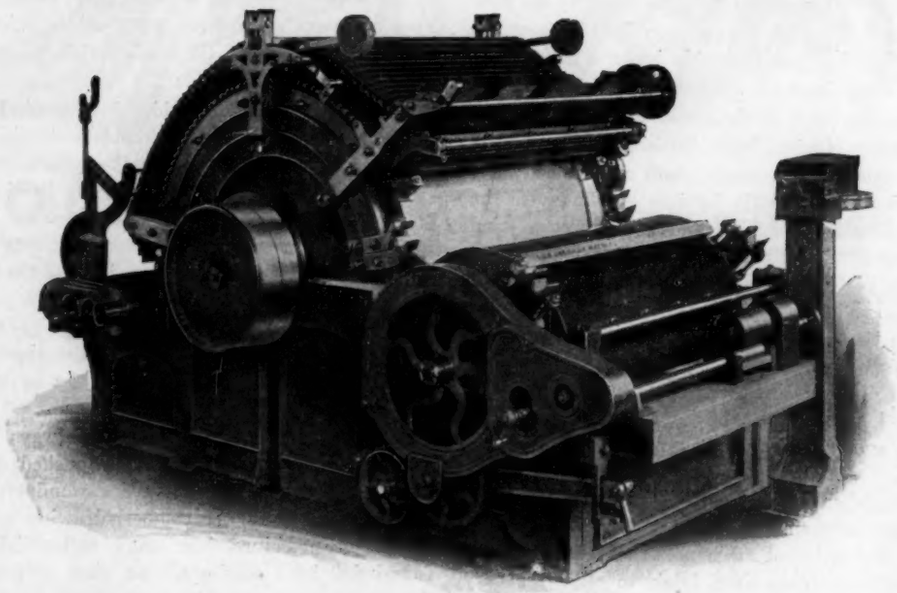
I could never quite understand why this spinner had not found the trouble, or, if he had found it, why he had not made the discovery known, but as usual, everyone was of the opinion that the trouble was in the card room. While at other mills, I have seen creels arranged in the same manner and have always found that mill making above a normal of doublings.

Where two creel boards are used, I have on some occasions seen an extra roving end running into the rolls, thus making doublings to be charged to the carders' defect account. Especially have I noticed this when the spinner had "broke back" ends for some cause. Thinking the experience and obseravtion of one man might possibly aid another, I am sending this letter to you.

M. M. (Miss.)

Any law, though framed by angels, that the people did not want and would not enforce, would not be a good law for the people. Legislation on moral questions must follow, and not try to force, public opinion.—*The Century.*

COTTON MACHINERY



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CONSTANT and conservative improvements in details of construction, close touch with actual mill requirements and conditions, and a careful selection of material particularly adapted for the building of Cotton Machinery, place us in a position to offer the best.

We invite with every confidence, all possible investigation into the construction and improved design of our machinery, and the work it is doing in the mills. The entire line of machinery is substantially built, very simple, and contains many valuable improvements.

There are many features and points of special merit embodied in our machines which it would pay you to investigate because they all stand for durability, simplicity, improved quality and increased quantity. They are not mere talking points, but money earning improvements.

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RUNNING OVER AND UNDER.

EDITOR COTTON:

I see in the February issue of COTTON where Lance (Michigan) claims he is sure I am wrong when I state that rubbing the latches with emery cloth will remedy the trouble of running over and under on speeders where the latches or rockers are worn or rounded.

He says in part "Wash wants us to believe that rubbing the end of the latches and rocker with emery cloth will remedy the trouble." Continuing he says, "It may do this, but only temporarily." Now, Lance may know about an English type of builder, but from his letter I judge that he does not read every issue of COTTON like "Uncle Wash."

He should read my letter in the October issue of COTTON entitled "To Remedy Badly Built Bobbins." He admits that rubbing the latches with emery cloth may remedy the trouble temporarily but evidently he does not know, as the statement is a confession on his part that he never tried it. I want to repeat that rubbing the latches with emery cloth is one of the best points in the card room.

As I stated in my letter in the October issue of COTTON, the best way and the proper way to remedy the trouble is to take the builder out and square the latches to the rocker by filing. This method means a loss in production, and for this reason it is better to rub the latches at doffing time during the week and take the builder out on some holiday or on Saturday.

I had to smile when I came across the statement "that rubbing the latches with emery cloth gives a better grip, or bite for a while, but it is not mechanical, as it helps, later, by shortening an already too short latch, to cause the very trouble he asks us about in his next to the last paragraph, that is, the rail or carriage changing before the completion of the lift."

Before taking this statement apart and giving "Lance" an answer, he should not forget, please, that the man who knocks another for going to a barroom is a better friend to him than the man who invites him to a barroom. What I am going to say I hope he will accept in the same spirit. When he has a little time he should take a spare latch, if he has one on hand, or any other piece of metal of the same nature, measure the piece lengthwise and then see how long it will take him to rub the piece with emery cloth and reduce it 1/64 of an inch in length.

I have erected cotton machinery for many years. I have been a carder twenty-five years and never out of a job. If I did not understand all types of builders I would have been out of a job some times at least.

The trouble of the rail changing as I claim at ¾ of the traverse every two or three layers is not caused as Lance indicates. I said that it was a puzzle for many, and it is.

The method given us by Lance for setting the twin gears, may be alright on Howard-Bullough frames, but would never do on the John Elce frame.

Now I would like to have "Lance" tell us what causes the carriage to change at ¾ of the traverse *a few* times during the building of the set? Remember, no slipping of the twin gears takes place. I would also suggest that he carry out the idea given at the conclusion of his letter, *viz.*, "when everything is running good, go and visit a while with the building motion, as it is the most intricate part of the mechanism of a frame." However, the man who understands the functions of a flyer is more valuable to a card room than the man who understands the functions of a builder.

Wash (New York.)

KEEP THE MACHINERY UP-TO-DATE.

EDITOR COTTON:

When a man faces what he must with a step triumphant and a heart of cheer we call it courage. This is a feature possessed by managers of most well managed mills.

These men succeed because they have the courage to carry out their convictions, and besides fighting their daily battles without fear, they are quick to give up an old idea for a new one.

There is a firmly fixed idea in the minds of many mill managers who give the stockholders dividends that if the machinery shows little wear after years of running, it is a saving to the mill by not replacing it with new.

There is no doubt that these men are honest in their convictions, and the only reason that can be offered for their conceiving such an idea lies in the fact that they have had no practical experience. The practical man is quick to replace old type machinery by new, simply because he knows that in a very short time the initial cost in making the change will be paid for by the extra quality and quantity of the product.

All mill men must admit that always and forever the outworn idea or machine will be pushed aside by the oncoming new one. Of late years wonderful improvements have been made on the comber, drawing rolls, fliers, looms and other machines, but many cotton mills may still be found that have not installed a piece of new machinery for the past twenty-five years.

The fly frame is the most imperfect machine in a cotton mill, and is responsible for 90 per cent of the defective work. Now, what I am coming at is this, keep up-to-date. Equip the fly frame with latest and best differential motion, ball-bearing top rolls and flyers. The differential acts as a governor only.

Wash (New York.)

WANTS INFORMATION ON COMBERS.

EDITOR COTTON:

I would like to have some of the contributors to the practical discussion department tell us some of their experiences with the Whitin high-speed comber. Give instructions for resetting, etc. I have had considerable experience with combers, but will be glad to have the opinions of others, as well as some of their experiences.

Comber (New York).

J. R. Killian, for eight years superintendent at Yorkville, S. C., and transferred to China Grove, N. C., where he had charge of the Patterson Manufacturing Company's Nos. 1 and 2 mills, has now been transferred to Concord, N. C., where he will have charge of the Cannon Manufacturing Company's Nos. 1, 2 and 3 mills. This is quite a promotion for Mr. Killian, and his friends are congratulating him on his advancement. E. C. Voss, superintendent of the Deep River Mills No. 2, at Randleman, N. C., has resigned and accepted the position of superintendent at the Patterson Manufacturing Company's Nos. 1 and 2 mills, recently vacated by Mr. Killian.

Barrett Specification Roofs

On the great Keokuk Power-house

THE mighty Mississippi has been dammed at Keokuk, Iowa. Under the enormous power-house pictured below the Father of Waters is now perforce spinning vast turbines with the power of 150,000 horses.

The entire enterprise is a triumph of modern engineering skill. Quality has been the first consideration in everything.

And the same engineering skill that harnessed the waters and constructed the foundation selected a Barrett Specification Roof as the building's crown.

How did it happen that a comparatively inexpensive roof was chosen for so monumental a building?

Because The Barrett Specification Roof is the best at *any* price. It would have been used if it had cost *twice* as much.

Such a roof will probably last twenty years or more without a cent of expense for maintenance. Its unit cost, which is the thing that modern engineering science considers, is about a quarter of a cent per foot per year of service, a lower figure than that for any other type of roof.

The Barrett Specification prescribes with precision the materials to use and the method of application, thus furnishing a basis for competitive bidding that is fair to the conscientious contractor, and providing means for insuring correct workmanship and materials. Include it verbatim in your own building specifications and you are assured of the best roof at the lowest price.

Booklets on request.

Special Note We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding. If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised Aug. 15, 1911, using the materials specified and subject to the inspection requirement.

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The Damp-proofing Paint

Especially recommended for use above the ground level on the interior of stone, brick or concrete walls to exclude dampness.
Has superior covering capacity and is vastly superior to other paints in its permanence and resistance to dampness. It penetrates into the pores of the brick so that an accidental abrasion does not break the waterproof seal. Furnishes satisfactory base for plaster and keeps the plaster from injury by dampness in the wall.

TAR-ROK SUB FLOORS

They cost less than piers and heavy timbers and extra excavation necessary to provide required air space beneath. They provide for absolute rigidity. No vibration is possible, regardless of character of machinery. The load they will sustain is limited only by the earth underneath. They protect absolutely against decay from ground dampness. They are suited for any heavy construction where wooden wearing surface is desired.

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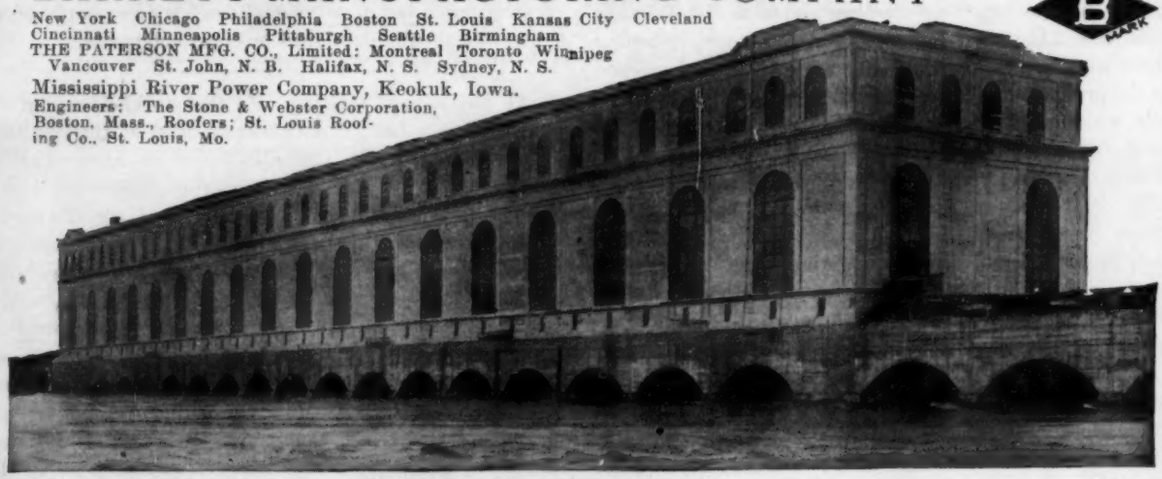
Engineers: The Stone & Webster Corporation, Boston, Mass., Roofers; St. Louis Roofing Co., St. Louis, Mo.



New Machinery and Trade Notes.

NOT FICTION, BUT FACT.

Nearly everyone remembers the Arabian Night's story of the poor fisherman who drew up in his net a flask from which, on opening it, smoke curled and changed into an enormous genie who made him rich. This story, so attractive to mankind that it has been told indefinitely, both in print and in picture, seems to be almost the height of romance. Yet it is repeated daily in the most prosaic way in many places, and almost no one realizes the fact.

The speeding train takes us past an unpretentious brick building with a few paper cones lying about, and none but the initiated recognizes it as an underwear knitting mill. Even those few fail to realize the wonderfulness of it, although they may agree with the numerous current articles regarding the wonderfulness of the loom, whose praises have been sung from the beginning of history, and no one knows how long before. It takes time to establish a reputation, and the loom, with its thousands of years of publicity, has established a reputation which the knitting machine, with its 300 years of history, has not been able to attain to, although the knitting machine is far more wonderful than the loom.

Consider what is going on in that unpretentious building from the time the whistle calls the laughing girls to the machines until its repetition sends them from their work. From each of 800 cones of yarn resembling the fisherman's flask a thread of yarn, not smoke, is circling up into the air, not to make a visionary genie to entertain an idle moment, but to make 16,200 square yards of tangible cloth to protect and comfort mankind. Between the starting and stopping blasts of the whistle—just one working day—45,000 miles of yarn has spun upward at the rate of 550 feet a minute, has been shaped into fabric containing 150,000,000,000 stiches, and has been made into garments. All Arabia never produced a fancy as wonderful as this ignored reality. But what produced the reality? The inventors and manufacturers of knitting machinery.

The object of this article is to briefly describe one of the best equipped knitting machine plants in the Western Hemisphere. It is illustrated on the front cover. Starting in 1889 with a force of two men and a boy, it has developed into the proportions shown, undoubtedly owing to the steadfastly maintained principle of excellence. From the slow back-and-forth motion of the first single-feed hand-power knitting machine to the almost uninterrupted, continuous motion of the modern power multiple-feed machine was a difficult path. But the same energy and determination which brought forth the chainless ribber pattern mechanism, the ribber stop motion, etc., is today further increasing the speed and security of the machine with the dogless attachment and similar devices. The product of this factory is circular rib knitting machinery, both plain and automatic, in all ordinary ranges of size, style and fineness; also electric cloth cutters.

The material work begins in the foundry, which maintains sufficient supplies of castings of the requisite quality for rapid and satisfactory machining. The forge shop comes second to the foundry in supplying material. Wildman cylinders and dials are made of seamless hammered steel, and a good-sized equipment of furnaces, steam hammers, etc., is needed to meet the requirements.

The machine shop is divided into several departments, of which the first in constructive importance is a large, well-lighted and well-equipped tool room. This company was among the first American knitting machine manufacturers to realize the advantages of machinery made on the interchangeable system, and a fine collection of tools, jigs and fixtures has been made. Consequently the purchaser of the machinery may rest assured that the most advanced means are employed to keep down the cost of manufacture, to insure prompt delivery of repairs, and to provide the surest interchangeability. A large storeroom for the finished stock insures prompt shipment, and fireproof vaults prevent interruption to business in case of fire. The buildings are of the most approved mill construction, with automatic sprinklers. The machine shop in all departments is equipped to match the tool room; whatever will contribute to accuracy and rapidity of production is provided.

Another important department of the plant is the erecting and testing room. Every machine is thoroughly tested, both for accuracy anl reliability. Machines which do not meet the requirements are dismantled and reconstructed until they do meet them. These tests do much to keep up the excellence of the product, since improvement is not largely dependent on the uncertain reports from distant mills.

The modern business world is convinced of the importance of the selling department of a business; indeed, it is one thing to manufacture and an entirely different thing to sell. The fact that the Wildman Company has, with a small but highly competent selling force, been able to sell all that the plant can produce in constantly increasing quantities, not only at home, but also abroad, where the selling requirements are most exacting owing to the separation in time and distance, indicates that the Wildman Company manages the selling end of the business to match the manufacturing end, and constitutes altogether an example of well and systematically developed business enterprise.

At the annual meeting of the stockholders of the JOSEPH DIXON CRUCIBLE COMPANY, held at the company's main office in Jersey City, N. J., on Monday, April 20, 1914, the retiring Board of Directors, consisting of Geo. T. Smith, William Murray, George E. Long, Edward L. Young, William G. Bumsted, J. H. Schermerhorn and Harry Dailey, were unanimously re-elected. The meeting was attended by a large number of stockholders, who expressed satisfaction with the present management, and recorded the largest vote ever represented at an annual election, 9,628 out of a possible 10,000 shares being represented. The officers of the company, consisting of Geo. T. Smith, president; George E. Long, vice-president; J. H. Schermerhorn, treasurer; Harry Dailey, secretary, and Albert Norris, assistant treasurer and assistant secretary, were also re-elected.

THERE IS NO RUBBER IN THE COMPOSITION OR PRONUNCIATION OF RU-BER-OID

THERE IS NO RUBBER IN THE COMPOSITION OR PRONUNCIATION OF RU-BER-OID

Critical Facts For the Buyer of Roofing

TRADE MARK REG. U.S. PAT. OFFICE.

RU-BER-OID is the original flexible, smooth surfaced, prepared roofing. Its introduction, in 1892, followed some five years of experimentation, in which The Standard Paint Company employed the services of skilled chemists in America and abroad. This opened a new era, and for the first time a ready-to-lay roofing was offered, which was free from the disadvantages of tar roofings, and which would not run under the most severe heat or crack with extreme cold. Its serviceability is vouched for by the fact that the first RU-BER-OID roofs applied in 1892 are still in good condition, still serviceable and weather-proof.

KA-LOR-OID (Colored Ruberoid) came later, and possesses all the enduring characteristics of RU-BER-OID with the added feature of having attractive and permanent colors worked into it in the course of manufacture.

Both RU-BER-OID and KA-LOR-OID consist of a felted fabric which is saturated and coated with flexible RU-BER-OID Gum.

There is no secret about the foundation of this fabric. It is the best roofing felt procurable. The only secret lies in the process of making RU-BER-OID Gum. This Gum is water-proof and as flexible as new rubber. Yet, unlike rubber, it retains these qualities when exposed to the elements. Rubber rots after slight exposure. RU-BER-OID and KA-LOR-OID retain their life and flexibility under the severest weather conditions.

We Originated and have kept on improving

RU-BER-OID and KA-LOR-OID (Colored Ruberoid) contain no rubber or tar. They are not "asphalt" roofings. They may be used on roofs from which drinking water is gathered without effecting the water in any way.

They are effective insulators, for they exclude both heat and cold. They are fire-resisting. Hot coals thrown on them do not set fire to the roofing or to the sheathing beneath.

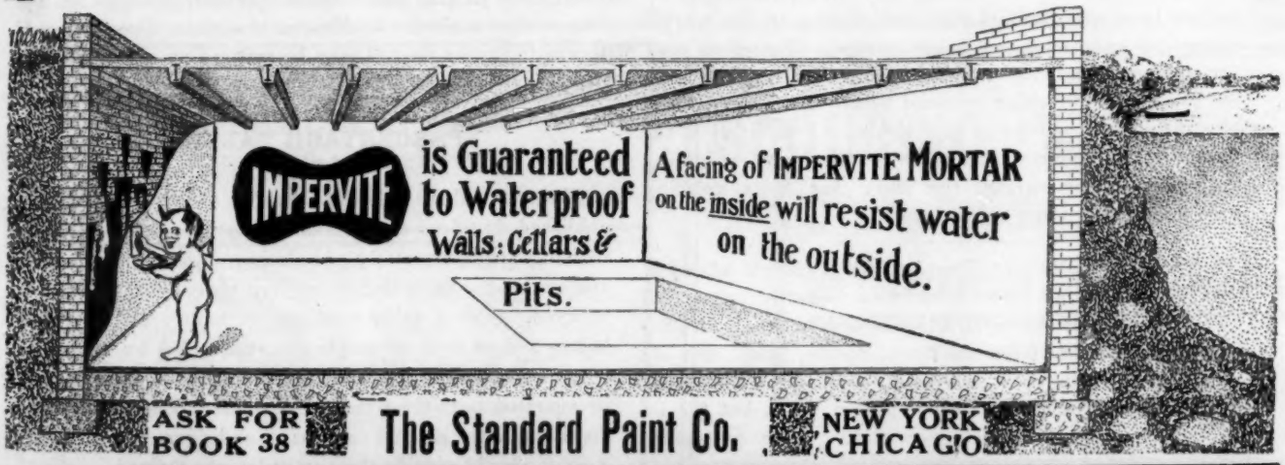
Roofings of Metal, Slate, Tile, etc., have no advantage over RU-BER-OID and KA-LOR-OID in insurance rating. All are placed in the same class by fire underwriters.

RU-BER-OID and KA-LOR-OID (Colored Ruberoid) are inexpensive to buy, cost little to lay and require very little attention. They are in the end the cheapest roofings known.

Booklet containing a lot of roofing information and interesting comparisons of various classes of roofings will be mailed on request.

The Standard Paint Company

The Standard for Two Generations


IMPERVITE
is Guaranteed to Waterproof Walls: Cellars & Pits.
A facing of IMPERVITE MORTAR on the inside will resist water on the outside.

ASK FOR BOOK 38 — The Standard Paint Co. — NEW YORK CHICAGO

HAWTHORNE MILLS, HYDE PARK, MASS.

One of the largest, if not the largest, mills in this country devoted to the manufacture of mechanical or woven felt, is the new Hawthorne Mills of the AMERICAN FELT COMPANY, which are located at Hyde Park, Mass. This plant, shown in the accompanying illustration, is thoroughly equipped with the latest and most up-to-date machinery for the manufacture of the woven felt made by this company. These mills are situated only about 500 yards from the Hyde Park passenger station, and have been operating full time for only about four months. Being located at Hyde Park, which is now a part of Boston, gives them the advantage of Boston transportation facilities, while being located far enough in the suburbs to enjoy spacious grounds surrounding the plant and other advantages of the semi-rural community.

This plant is one of seven mills owned and operated by the American Felt Company to manufacture roller, clearer and slasher cloths, as used in textile plants; laundry cloths for power laundries; woven felts for piano actions; lithographers' flannels; sieve cloths for wall paper printing; press blankets for newspaper printing, and similar materials. Many of these fabrics are well known to COTTON'S readers and are in daily use in hundreds of mills throughout the country. The increasing amount of business which necessitated the building and equipment of this entirely new plant indicates vividly the high esteem in which the products of this company are held by their thousands of customers.

THE HAWTHORNE MILLS OF THE AMERICAN FELT CO.

THE SEYDEL MFG. CO., Jersey City, N. J., are calling attention to a new product they are placing on the market under the name of Astra finishing soap. There has been for many years an urgent demand among knit goods bleachers for a white finishing material which would not develop any rancid odor in storing and also give a soft feel to the garment. The success obtained in practical experiments by the manufacturer warrant the belief that Astra finishing soap will answer these requirements.

The Standard Paint Company, with general offices at 100 William street, New York City, recently announced that on and after April 25, 1914, their New England office would be located at 6 Beacon street, Boston, Mass. The old offices, at 70 Kilby street, have been occupied by the Standard Paint Company for about eighteen years, but the increased volume of business necessitated more commodius quarters, hence the change.

A NEW AND INTERESTING DEVICE.

Until the present time no apparatus has existed in the spinning mill for the quick application or removal of travelers from the rings of a ring spinning frame. At the Philadelphia Textile Show of the National Association of Hosiery and Underwear Manufacturer, ALFRED SUTER, textile engineer, of 200 Fifth avenue, New York, was exhibiting two simple devices intended to reduce to a minimum the stoppage of the frames in changing the travelers, and to collect these travelers automatically. It was claimed that travelers on a machine of 400 spindles could be changed in six to seven minutes by two girls, whereas this formerly took twenty to thirty minutes. With this apparatus, which resembles a pair of pliers in appearance, the placing of the travelers on the rings is easily accomplished. This device has a special spiral wire, which can be easily exchanged, which contains the travelers. On this wire 400 to 500 travelers can be placed, according to the number of spindles on the machine. The spiral, when filled, is fastened to the device so that the travelers are sliding to the front or pressing part of the apparatus, and by a slight pressure with the hand the travelers are pressed to the ring. This work is easily done and can be performed by girls.

The device for removing the travelers and the collection of same practically reverses the former operation and at the same time prevents the travelers from getting into parts of the machine or into the work or waste, and also prevents the necessity of sorting out the travelers after removal. The travelers, when removed, are collected on a wire similar to that on the preiously described device and may be transferred to the other device for reapplication to the frames when desired. An illustrated circular describing and illustrating these devices may be secured on application to Mr. Suter's office at 200 Fifth avenue, New York.

PERCENTAGE TABLES.

Under the above title the CASSELLA COLOR COMPANY has published for free distribution to dyers a table for conveniently and accurately calculating into pounds, ounces and grains the percentages on given weights of material to be dyed. Such a table is almost of hourly use in a dyehouse, and as it is of ample size, being 8½ by 16 inches, it can be tacked to the wall of the drug room to advantage or mounted near the dyer's desk. It is to be had printed on either heavy or light cardboard, and dyers, in asking for a copy, should specify the particular one wanted.

GLENLYON DYE WORKS

(Yarn Dept.)

CENTRAL FALLS, R. I.

FRANK A. SAYLES, Lessee

Bleachers and Dyers

OF

Cotton Yarns in Ball-warps and Skeins, Silk and Viscose Silk

SPECIALTIES: COLORS FAST TO BLEACHING, Mercerizing, Laundering, Cross Dyeing and Light. Dyed Novelty Effects in Fast Colors. High Grade Bleaching of Cotton Warps and Skeins. Silk Dyed Fast to Boiling Off and Bleaching.

Insist on Having

"GLENLYON DYED YARNS"

Safest and Most Reliable in the Market.

Write for Shade Card, Information and Guarantee.

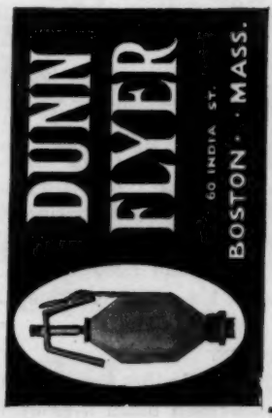
CORTRIGHT---The Stormproof Roof

ABSOLUTE protection from the elements is assured the house roofed with Cortright Metal Shingles.

They interlock and overlap so that no snow or rain, spark or ember can penetrate.

Adaptable to any building, in any climate. Valuable book on roofing sent free on request. Write for it to-day.

Cortright Metal Roofing Co.,
Philadelphia and Chicago



PERFECT BALANCE.
NO CHANGING SLOT.
TWIST RETAINED.
A " DOG DAY" FLYER

MORE AND BETTER ROVING

LESS DOFFING, HANDLING, SETTING IN, PIECINGS AND WASTE.

Costs No More
Makes and Saves You Money.

DUNN FLYER CO.
60 India St., Boston, Mass.

The "1912" Cloth Cutting, Folding and Winding Machine

This machine will cut down operating expenses. It does in one operation the work which is now being done in two. It cuts the cloth, folds the edges and rolls them up in one operation, and at all times gets one more strip out of a bolt of cloth than is possible with the old method of cutting. At the same time it measures the bolt of cloth to show the manufacturer whether or not he is getting the number of yards he is paying for. With the high price of cotton to-day every knit goods manufacturer ought to look into this to see if he is getting the maximum efficiency at the least expense. You will find when you come to figure it up in the course of a year that the labor it saves is a big item.

Also have other labor-saving devices, and upon application you can get prices and full information on same.

J. A. FIRSCHING, 50 John St., Utica, N.Y., U.S.A.

Clinton H. Scovell & Company

Certified Public Accountants
Industrial Engineers

40 Central Street, - - Boston, Mass.

Specialists in Textile Cost Accounting

DIXIE SPINDLE & FLYER CO., Inc.

Expert Overhaulers and Repairers

COTTON MILL MACHINERY

CHARLOTTE, N. C.

VICTOR MILL STARCH

THE WEAVER'S FRIEND

It means good running work and SATISFIED HELP. It boils thin, penetrates the warps and consequently does not knock off on Slasher or looms, and CARRIES THE WEIGHT INTO the CLOTH. Penetrating the yarns as it does it gives a full round thread, increases the breaking strength and makes a cloth of smooth well-filled finish and superior "feel."

You have but to try it to be convinced that it is the best starch in the market. Write for samples and price.

MANUFACTURED BY
THE KEEVER STARCH COMPANY, South Columbus, Ohio.
JAMES H. MAXWELL, Southern Agent, Greenville, S. C.

FOR

SCOURING—WASHING

There is nothing which gives you the soft, harmless, thorough and low-priced results of

Alumina Soapalite

THE MINERAL SOAP

The Electric Smelting & Aluminum Co.
LOCKPORT, N. Y. Sole Manufacturers

KNITTING MILL NEWS.

Notices of mill projects, additions or improvements are solicited for this department. Other notices pertaining particularly to the Southeastern section will be found in the Southern Mill Situation review.

IOWA.

DES MOINES. The Des Moines Hosiery Mills have announced that they are not to establish a branch plant at Fargo, N. D., as was recently reported. This company manufactures children's seamless and ribbed hosiery.

MAINE.

LEWISTON. A new hosiery manufacturing company, under the name of Beliveau & Jutras, has been established by E. Beliveau and P. S. Jutras, formerly of Portland, Me.

MICHIGAN.

BAY CITY. The Amonica Knitting Company are to move their plant to Williamston, Mich., and consolidate with the New Way Knitting Company, of that place.

MISSOURI.

JEFFERSON CITY. The Lowell (Mass.) Bleachery has been granted a charter at Jefferson City to do business in Wisconsin. This concern at present operates cotton mills and finishing plants for both cotton and linen fabrics in both Lowell, Mass., and St. Louis, Mo. The new company is chartered for $400,000.

NEW JERSEY.

AVERILL PARK. It is reported locally that the plant formerly occupied by Tim & Co. has been taken over by the Frank Knitting Company for the manufacture of cotton and worsted ribbed underwear.

NEW YORK.

ATHENS. The Athens Knitting Company, which was recently purchased by the Swansdown Knitting Company, of Hudson, N. Y., and is now known as the Athens Textile Company, has not decided upon the installation of machinery at these mills, but is giving the mill a general cleaning up, resetting the boiler and putting everything in good shape.

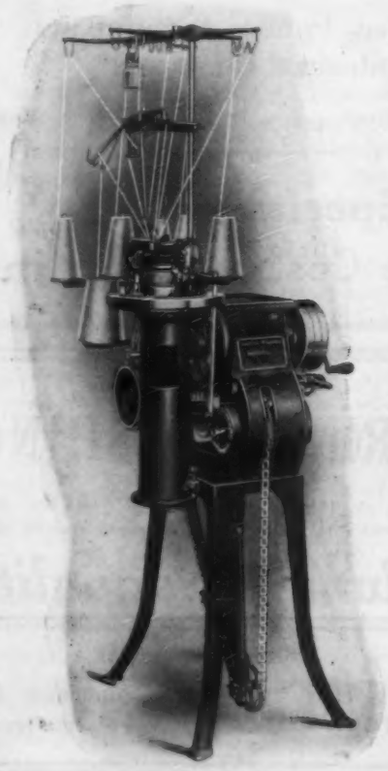
COHOES. An inquiry was recently received by the Fitwell Knitting Company, of this place, from the Secretary of the Navy, to find out the earliest possible moment when this company could deliver a shipment of 40,000 flannel shirts.

NEW HARTFORD. The new mill of the Olympian Knit Goods Company, which was completed a short time ago, is now fully occupied. This addition to the mill was made for the purpose of providing more room for manufacturing, and no increase in the number of operatives or equipment has been made. Ladies' light-weight ribbed underwear and sweater coats, cardigan jackets, etc., are manufactured by this company.

NEW YORK. The consolidation effected between the Pioneer Knitting Mills and the knitting plant of the Wm. N. Daniels Company, both of this city, is to be known as the Pioneer Knitting Mill. The operation at the Daniels plant is to be discontinued.

PENNSYLVANIA.

INTERCOURSE. The branch plant of the Ephrata Hosiery Mills has started manufacturing with an equipment of 40-144 needle Mayo automatic knitting machines and 12 Ruth & Wildman ribbers. This concern produced seamless hosiery.



There is **no expensive skilled labor** required **in the operation of our MODEL F** machine for the production of half hose in all qualities and from any material.

The **saving effected** ranges from **7 to 15 cents** per dozen.

Isn't this worthy of consideration?

Established 1865

Scott & Williams, Inc.

88 Pearl Street,
BOSTON

NEW YORK PHILADELPHIA UTICA

Here Is The Place

Where profits are made--or lost.

Reliable and adequate power at economical cost is the experience of Manufacturers who are using

Clinchfield Coal

AND

Clinchfield Service

The one, a product of up-to-date mining methods; the other a scientific aid to fuel efficiency.

Mined By

CLINCHFIELD COAL CORPORATION
DANTE, VIRGINIA

Sold By

CLINCHFIELD FUEL COMPANY
SPARTANBURG, S. C.

CLEAN

LUMPY

"NEVER SHORT OF CARS"

LEBANON. Representatives of the Allen Knitting Mills Company, of Philadelphia, have been investigating in Lebanon with a view to finding a suitable location for their Philadelphia plant. If such a location is found, it is their intention to move the plant from Philadelphia to Lebanon.

MONTELLO. The Montello Hosiery Manufacturing Company recently changed its name to the Holland Hosiery Company.

PITTSTON. The Alpine Knitting Mills, manufacturers of Swiss ribbed underwear, announce that they have not as yet decided on the plans for the construction of an addition to their plant on the land recently purchased.

RHODE ISLAND.

WESTERLY. The George T. Moore Company, manufacturers of elastic webbing, have recently purchased eight acres of ground adjacent to their mill. It is understood they expect to erect a large plant on this ground.

TEXAS.

AUSTIN. It is reported that Z. T. Fulmore is to establish a hosiery mill in Austin and proposes to use the knitting machinery which belongs to the municipal school board of the city.

WISCONSIN.

MILWAUKEE. It is reported by the Everwear Hosiery Company that an unusually large fall business is being received.

STEVENS POINT. The Racine Underwear Mills, which were taken over by new interests and reincorporated in March, are to manufacture a new line of goods and increase their force of operatives.

DRAPER COMPANY SERVICE.

To Draper Company customers this service is a valuable asset. Suppose a mill is considering the replacement of common looms by Northrop automatic looms. The men of their selling department advise the mill representatives as to the best model of loom for the fabrics to be produced, and the most desirable attachments and construction to insure quality of goods and economy in operation; they furnish blue prints, if desired, showing arrangement of the new looms in the available room. In connection with the order they furnish samples of leather parts that must be ordered of others, and data as to harness, etc.

When the looms are located in the mill, they furnish men to assist in the application of filling batteries and warp stop-motion, and to assist the mill people in becoming familiar with the automatic devices. After these men leave the mill and the looms are in charge of the regular weavers and overseers, their loom experts call from time to time to see if everything is working properly and to make suggestions if such are needed.

They expect customers to call on them whenever the results obtained from their machines are unsatisfactory or when there appears to be any question either as to the proper working of the mechanism furnished or quantity or quality of work produced. They have men available, both North and South, who spend their entire time in the interest of mills which are customers of this company. They expect to hear from any mill from any point of the compass where they may be of service.

SOME INTERESTING KNITTING MACHINERY.

The exhibit of the H. BRINTON COMPANY at the Philadelphia Textile Show contained, among other machines, a 17-inch, 8-feed, 13-cut body machine. Also one 3¼-inch, single-feed, two-speed ribber, equipped with selvage welt and their own patented two-speed stop motion. This latter machine was 220 needles. Another special machine which they exhibited was a 3¾-inch, 220-needle automatic hosiery knitter for making plated half-hose. This machine was of the revolving cylinder type, and contained all the good features of existing machines in addition to a number of new and novel points. Among the features of the machine were five-yarn changers; screw adjustments for every adjustable part; rocking sinkers for producing the finest fabrics; perfect plating; simple and convenient transferring, and high speed in both straight-away and reciprocating work. The same high grade of workmanship and material that has characterized Brinton machines for the past twenty-six years was noticeable in the construction of machines shown in their exhibit. Illustrated circulars in connection with the machines mentioned may be secured by addressing the H. BRINTON COMPANY, 213 Race street, Philadelphia, Pa.

GETS NAVAL CONTRACT.

THE WILLIAM C. ROBINSON & SON CO., refiners of lubricating oils and one of the oldest concerns in Baltimore, has again secured the lubricating oil contract for the force feed and turbine equipped battleships of the United States navy. The contract includes all classes of ships—battleships, cruisers, torpedo boat destroyers and submarines. The original contract called for the Atlantic fleet, but now the Navy Department has extended the contract to cover the Pacific coast.

The William C. Robinson & Son Co. has a branch in San Francisco, and therefore is able to take care of business on the Pacific coast as well as on the Atlantic coast. This concern's growth has been rapid in the last few years. The contract held by this company is considered one of the largest lubricating oil contracts given out. Owing to the facilities, such as pipe lines, refineries, branch houses, etc., they are able to take care of the navy business and are able to make prompt and satisfactory deliveries.

As a reliable sizing for warps, THE ARABOL MFG. CO., 100 William street, New York City, recommend their "Sizeoleum." It does not call for the addition of tallow. Southern manufacturers in particular, it is claimed, are greatly pleased with it. It gives excellent results on warps for gray goods of the export grade and for converters' goods. Used with starch, it works splendidly as a sizing on warps for sheetings, print cloths, shirtings, ducks or similar goods.

While Spain imports about $23,000,000 worth of raw cotton annually, nearly all from the United States, and its manufacture of cotton goods aggregates about $86,000,000 each year, very little of the raw material is produced in the Kingdom.

American Felt Company

TRADE MARK

Oldest, largest and most progressive manufacturer in the country of Felts for all purposes.

Roller, Clearer and Slasher Cloths that are RIGHT produce the best yarns at the least expense.

We make cloths that suit your exact needs and are uniform in quality. Every yard is trade-marked for your protection.

Specify our products in ordering of your supply house. If they are out of stock, we will ship to you direct.

If your rollers are sent out of your mill to be covered, insist on the use of our trade-marked cloth. You are sure then.

American Felt Company

TRADE MARK

Some of the Exhibits at the Fourth National Textile Show.

AMERICAN KRON SCALE CO., New York. The booth of this company was devoted to the exhibit of automatic springless scales which they are offering. Portable platform types with a capacity of 500 pounds; a counter scale with a capacity of 100 pounds; and a small hanging pan scale with a capacity of 30 pounds were shown. An exhibit of the dial mechanism, showing the working principle of the scale, was also exhibited, and this mechanism attracted a great deal of attention by its almost total absence of friction. When once set in motion with the weights in balance it would keep in motion for upwards of 2 hours, attracting the average man's attention as being a near approach to perpetual motion. The large dial on these scales enables the operator to read at a glance the correct weight, while the tare beam is another special feature of importance, as it gives an automatic reduction for tare so that only the net weight is shown on the dial. The booth was in charge of M. E. Fitzgerald, Manager of the Boston office of the Company, at 620 Tremont Bldg., assisted by A. B. Lee and H. C. Berry.

BARBER-COLEMAN CO., Rockford, Ill. The exhibit space of this company was well occupied with several types of the warp-tying machine and also several new attachments for this machine, which enabled them to tie in warps of a much more intricate nature than has ever before been attempted on machines of this character. The well known Barber knotters were also being exhibited. The demonstration work on the warp-tying machine still continues to attract a great deal of attention from mill men, and particular interest was being manifested in the Model J machine, which is of the portable type and is a machine which they have developed for use in small mills. Another special model was designed to run in behind a loom and tie in the warps right in position. This interesting exhibit was in charge of R. E. McCausland, Field Manager for the Barber-Colman Co., Rockport, Ill. Others in attendance were L. C. Goodrich, Manager of the Boston offices; J. H. Spencer, Manager, Greenville, S. C., office; W. L. Pemberton; W. B. Anderson; I. R. Fifield; Mr. Bingham, of the English branch, and Miss Mae J. Riley.

A. W. BUHLMANN, New York. In this exhibit were shown blankets from the Beacon Mfg. Co., of New Bedford, napped on the Mueller napper, of which Mr. Buhlmann is the American agent. There was also a display of mercerized yarn prepared on the Buhlmann automatic skein mercerizing machine, which has a capacity of 1200 to 1500 pounds per ten hour day with one operator. A Windsor napping machine for knit goods was also shown in operation. Tentering machine clips and other samples of machinery attachments were exhibited, as well as prospectuses and catalogs of Mr. Buhlmann's full line of dyeing, bleaching and finishing machinery. This exhibit was in charge of A. W. Buhlmann, assisted by George R. Thurber, Hans Wanders and Joe Stummel.

H. W. BUTTERWORTH & SONS CO., Philadelphia. The exhibit of this well known firm of finishing machinery manufacturers consisted of a set of dry cans to which was attached a Kaye & Foxwell patent guider and vertical feeder, and a Simpson cloth winder direct connected to the drying machine. This winder was used to show its automatic cutting arrangement, by which the cloth was cut off automatically at each seam and a new roll started without [illegible] or slowing down the drying machine. Another important item [illegible] exhibit was a flat seam sewing machine which is now being placed upon the market, and which avoids the pasting of seams together when passing through friction or similar calenders. This is a feature which should be thoroughly appreciated by all managers of finishing plants. Those present at the exhibit were Harry W. Butterworth, W. S. Rowley, Thomas France and A. C. Freeman.

THE CARRIER AIR CONDITIONING COMPANY OF AMERICA, New York. The special feature of interest at this exhibit was a complete model of a mill of two stories equipped with the Carrier system and showing the different controls. Connected to this equipment was one of the latest types of fan utilized by this company and designed for a very high efficiency in the movement of air equipped with a Type "H" humidifier and the automatic dew point control. The apparatus plainly illustrated the method of the company for maintaining different temperatures in the various departments of the mill, regardless of conditions in other parts of the building. This is a special feature with the Carrier Company, who are in a position to equip each room of any mill with a separate carrier automatic humidity and temperature regulator with air valves, etc., practically making each department of a mill a separate unit so far as the temperature and humidity of that particular department is concerned, at the same time operating all the departments from one central plant. J. I. Lyle of the New York office was in charge of the exhibit, assisted by C. T. Lyle of the Boston office and J. H. Gaiser.

CLIPPER BELT LACER CO., Grand Rapids, Mich. This company exhibited Clipper lacers in the different sizes and demonstrated them in actual belt fastening. The attention attracted to this exhibit showed plainly the interest of manufacturers in this handy time-saving device. The exhibit was in charge of H. V. Bishop, of Grand Rapids.

THE CONNECTICUT MILL SUPPLY CO., Torrington, Conn., had a display of sample drop wires and the justly famous "Connecticut" spinning rings. They also exhibited plate holders.

CURTIS & MARBLE MACHINE CO., Worcester, Mass. This company, while manufacturing an extensive line of machinery made the chief attraction of their exhibit a shearing machine with single or double cutters. It attracted much attention from those manufacturers whose interests centered around the special lines and goods of this character..

FOSTER MACHINE CO., Westfield, Mass., exhibited the Foster quick traverse winding machine, cone winders, tube winders, and machines for doubling or folding two, three or four ends, all in operation. One of the interesting features of their exhibit was methods of precise winding, which were shown for the first time. The hibit was in charge of J. O. McKeon and T. E. Connor. E. T. Fowler, the Manager and Treasurer of the Company, and John Hill of Atlanta, the Southern Representative, were also in attendance.

JOHN H. GILES DYEING MACHINE CO., Amsterdam, N. Y., exhibited an all bronze, model B, special skein dyeing machine with a capacity of 350 pounds of carpet yarns. This machine had a number of special features, all of which were being presented by John H. Giles of the company and his son Donald M. Giles, who were in charge of the exhibit.

GROSSER KNITTING MACHINE CO., New York. This company's exhibit was limited to lines that would appeal particularly to the larger class of manufacturers in attendance at a New England exposition. Among other machines was a single lock automatic sweater machine, a double lock automatic sweater machine, a hand knitter transformed into a power machine, a pearl stitch machine which is much used on infant's ware and similar goods, a seamer for full fashioned hosiery and some of the "Record" loopers, which is a two thread machine producing an elastic and unbreakable seam where loop is to be jointed to loop. The exhibit was in charge of Max Nydegger, assisted by A. F. Kneale.

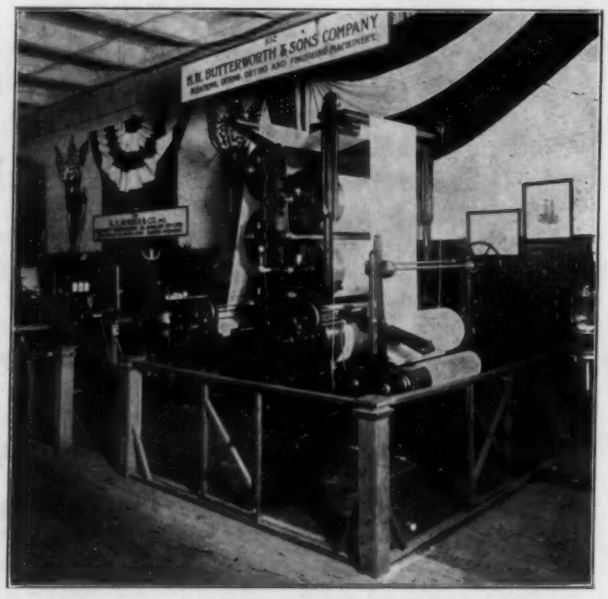
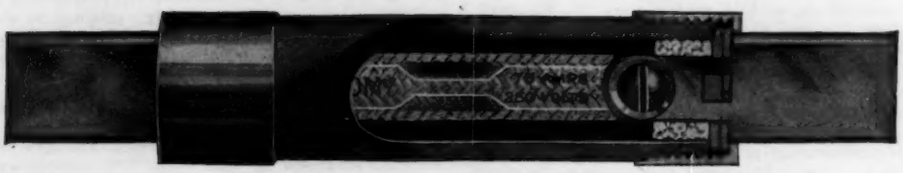


EXHIBIT OF THE H. W. BUTTERWORTH & SONS CO.

HUSSONG DYEING MACHINE CO., Groveville, N. J. The exhibit of this company was really a combined exhibit of the Hussong Company, the Uniform Dyeing Machine and Morris & Company, in which was shown a miniature model of the Uniform hosiery dyeing machine, and also a model of the Hussong skein dyeing machine so constructed that the course of the liquor through the machine could be seen. Samples of mill baskets manufactured by Morris & Company were also shown in this booth. J. H. Thompson and A. R. Heritage were in charge of the exhibit.

JEWELL BELTING COMPANY, Hartford, Conn. This company exhibited various sizes and kinds of the Jewell chrome leather belts, one exhibit showing the belt in operation running through a trough of water one-half submerged beneath the surface, while the other half ran back over the top of the pulleys. Illustrated literature was given out showing this water proof belt manufactured under the trade-mark of Jewell Chrome Belt in many driving installations. The exhibit was in charge of H. A. Seymour and J. H. Fitzpatrick.



Sectional View—Knife Blade Type Fuse.

Why Spend Four Times More Than Necessary For Annual Fuse Maintenance?

A saving of 80 per cent. per year in fuse maintenance expense is being effected in industrial plants, central stations, mines, department stores, steam and electric roads---in short, wherever

"Economy"
Renewable Cartridge Fuses

are used. Twenty-five blowouts of the ordinary non-refillable fuse cost $10.12\frac{1}{2}$---where 25 blowouts of an Economy Renewable Cartridge Fuse costs $2.10---and Economy renewable cartridge fuses provide positive electrical protection under all conditions. They neither vent fire nor hold a sustained arc --- they are absolutely safe.

Are you spending four times more than necessary for annual maintenance?

Two Economy Renewal Elements are now furnished with each Economy Fuse.

Write today for catalog No. 7 and list of prominent satisfied users.

ECONOMY FUSE & MFG. COMPANY

Kinzie and Orleans St., Chicago, Ill.

KLAUDER-WELDON DYEING MACHINE COMPANY, Amsterdam, N. Y. This exhibit showed an improved raw stack dyeing machine with a capacity of 500—800 pounds per batch, a 28 stick bronze combination cotton and worsted dyeing machine with a capacity of 200—300 pounds per batch, and the spiders of a 21 stick combination machine mounted on a shaft showing how the new skein dyeing machine is especially adapted to resist acid dyes. A number of new improvements were shown in connection with these machines. The representatives at this exhibit were W. S. Duell, General Manager; Henry Higgs, Vice-President; Alexander Fea, J. M. Wilson, J. Benosch, and W. Brown.

BROWN SPIN-WRIGHT COTTON CO., New York. The very efficient and effective manner in which the steel band drive operated the spindles on what was obviously an old, used spinning frame, and the novelty of this method of driving spinning and twister spindles, caused the exhibit of this company to be one which attracted a great deal of attention from mill men. Many who saw the frame in operation went away and came back for a second look, convinced that if this system could be worked so well on an old, made-over frame, that on a new frame it should perform its work still better. Henry L. Brown and Alexander C. Proudfit of the company were in charge of the exhibit. They were assisted by H. W. Cotton; C. S. Stevens; George L. Pafort, and J. D. Wentworth.

The many mill owners and agents from the South who visited the exposition will recognize the accompanying picture of the ring-spinning cotton frame exhibited by this company, equipped with their geared-spindle-drive. The 240 spindles on this frame were all driven positively at the same speed by a single, endless, perforated steel driving band running in a trough on the spindle rail, containing oil distributed by the band to lubricate the spindles, gears and band automatically. The exhibit was near that of COTTON, and aroused much interest on the part of visitors. We are glad to learn that it is the intention of the makers of this geared-spindle drive to exhibit and introduce these novel frames in the South at an early date. The new drive, it is claimed, makes it possible to secure a uniformly spun or twisted product, at the highest speeds which the travelers will permit, and as the spindles run continually at top speed, the maximum output is assured. The band is guaranteed for one year, and is expected to last considerably longer.

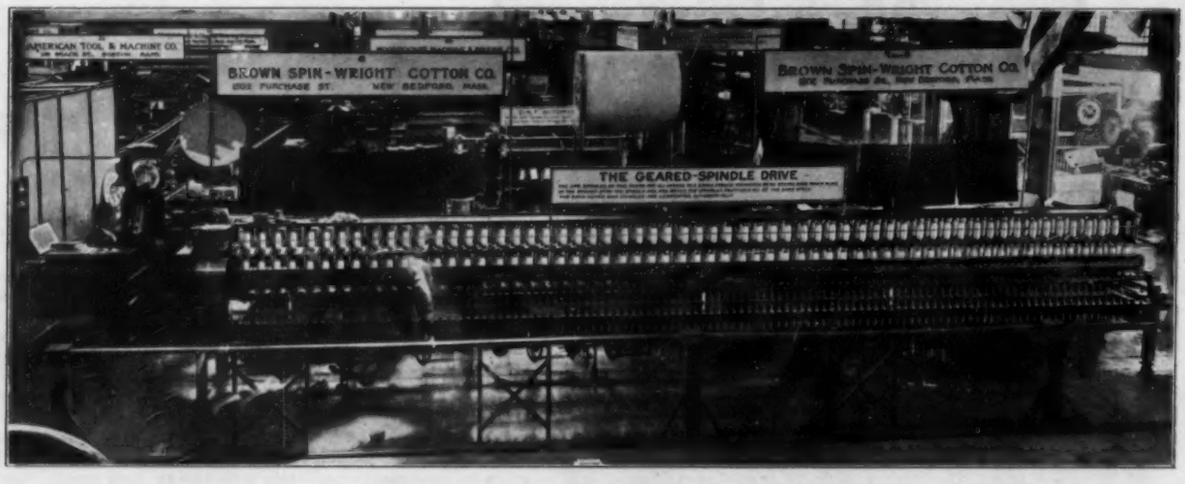


EXHIBIT OF THE BROWN SPIN-WRIGHT COTTON CO.

THE PHILADELPHIA DRYING MACHINERY CO., Philadelphia, Pa. In this exhibit space was illustrated the latest improvements of this company in dyeing, drying and finishing machinery. The machines illustrated represented the very latest of types of the fire proof construction in which asbestos was used for insulation. The Hurricane circulating dyeing machines have an improved metal basket or container which may be automatically lowered into the machine proper in such a manner as to subject the goods to the action of the uniform flow of dye liquor. The hot and cold plate hydraulic and screw presses are built in various styles and sizes and capable of giving pressures varying from twenty-five to several hundred tons. Hurricane singeing machines were also illustrated, equipped with indestructable metallic forms and special burners for singeing cotton hosiery. There were many other views showing large installations of machinery which proved very interesting to manufacturers interested in this end of the industry. The booth was in charge of W. W. Sibson, Treasurer of the Company, and E. L. Smith.

ROESSLER & HASSLACHER CHEMICAL CO., New York. In this exhibit were numerous samples of many different kinds of goods bleached by the peroxide process and demonstrations of the process of bleaching any fibre or mixture were the principal features of this company's exhibit. It was one that was particularly interesting to many mill agents and manufacturers who oftimes find themselves dissatisfied with some of the older methods of bleaching their products. Representatives present were Robert A. Carter, John T. McCarthy, George W. Kuchler, and G. Goerner.

SMITH, DRUM & CO., Philadelphia, Pa. The skein and warp mercerizing and dyeing machines manufactured by this company were entirely too large to be exhibited, but photographs of their latest designs were shown and thoroughly explained to those interested by R. P. Smith of the firm, who was in attendance at the booth during the entire exhibition. Quality of product and economy of operation are special claims for machines manufactured by this company.

STEEL HEDDLE MANUFACTURING COMPANY., 2110 West Allegheny Ave., Philadelphia, Pa. In this exhibit was shown heddles and frames for all classes of weaving, and also drop wires and all-steel doup harness for leno work. The exhibit was a very interesting one and attracted much attention. J. H. Hill, the Eastern Manager, with headquarters at 76 Dorrance Street, Providence, R. I., was is charge and R. J. Freitag, Secretary and General Manager of the Company, was also in attendance.

TEXTILE FINISHING MACHINERY COMPANY, Providence, R. I. The principal feature of this company's exhibit was a Spencer's patent nine arm skein mercerizing machine entirely automatic in its action, which had been manufactured for a New Bedford mill. One of their combination cotton and husk calender rolls was also shown, as was a copper drying cylinder and a new process electric deposited mangle roll for finishing work. E. A. Rusden,, Vice-President of the Company, was in personal charge of the exhibit, assisted by James Farrington and other representatives.

UNITED STATES GUTTA-PERCHA PAINT COMPANY, Providence, R. I. In this company's exhibit everything was white. The booth had been painted with Rice's mill white and surmounted by one of the barrels in which the paint was shipped, which was also white, while an arch over the entrance informed the unitiated that this was the home of "Rice's Mill White." A large number of photographs were shown of mills using paint manufactured by this firm. The white background made the decorations stand out very prominently. Souvenirs were being distributed, consisting of a unique little cigar lighter and a pocket note book, both of which were white. Alexander S. West, was in charge of the exhibit, assisted by J. S. Palmer, the Southern Representative; T. Henry Taylor, George C. Hazard, H. E. Jordan and C. D. Moore. President H. W. Rice and Secretary Charles W. Eastwood were also in attendance.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO., Pittsburgh, Pa., exhibited the new type "CS" steel frame induction motors which were built for service in textile mills and shown for the first time at this exhibition. These motors were displayed with their parts unassembled, laying before the many visitors to the Westinghouse booth the details of the indestructible rotor, the shafts, bearings, windings, etc. Also small textile type motors for loom and spinning frame drive, the control devices for these motors, four frame drive motors, circuit breakers and auto starters. Mounted on the top of four gilded posts at each corner of the Westinghouse space was one of the new 1,000 watt improved, nitrogen-filled Mazda lamps, shaded by an enameled steel reflector. There was also displayed a full line of Westinghouse Mazda lamps in the smaller sizes. Westinghouse motors direct connected to various machines were to be found in the space of many exhibitors. G. D. Bowne was in charge of the exhibit and was assisted by several representatives from the Boston office.

PERMANENT COLORS CREATE PERMANENT TRADE

THE INSISTENT DEMAND OF THE CONSUMER FOR FAST COLORS MAKES IT IMPERATIVE THAT THE RETAILER, THE JOBBER, THE CUTTER-UP AND TEXTILE MANUFACTURERS RECOGNIZE THE QUESTION, FASTNESS OF COLORS, AS A MOST IMPORTANT ONE

Indigo The introduction of synthetic Indigo by the Badische Anilin-& Soda-Fabrik in 1897 greatly lowered its cost, simplified its application and placed it on a scientific basis. The immediate practical result has been that Indigo is used on an ever increasing scale in the production of overall goods (denims) for working garments worn by artisans of all classes everywhere, as well as for navy blues with white designs, in percales and similar fabrics which are so largely used the world over for women's house and workdresses. Nothing has yet been found which is as well suited as Indigo for these and many other purposes, since it combines minimum cost, brilliancy of color and satisfactory fastness. In fact, the word "Indigo" to the consuming public is a guarantee of a durable and satisfactory color.

Indanthrenes Unfortunately, however, Indigo produces only a Blue, while the trade requires every shade in fast and brilliant colors. To Dr. Rene Bohn, Director of the Badische Anilin-& Soda-Fabrik, Ludwigshafen a Rhein, should be given credit for the discovery of the series of dyestuffs derived from Anthracene, known as Indanthrene Dyes, which produce fast colors in every desired shade and tone. The introduction of these dyes in the cotton industry has created a new standard for fastness and brilliancy, in which combined respects they excel any colors heretofore known. Indanthrenes are actually permanent while the fiber lasts, meeting therefore every trade requirement, a fact so well demonstrated that today the word "Indanthrene" (pronounced In-dan-threne) is synonymous with "Fast Colors." There is probably no factor of greater importance in the manufacture of cotton goods than the fastness of the colors, in that it constitutes a most attractive selling argument, increases their popularity, and broadens the market for them.

BADISCHE COMPANY.

EUREKA FIRE HOSE CO., New York. The Enterprise Rubber Co., who is New England agent for this concern, had an interesting display of Eureka products, including fire hose, steam and water hose, etc. They also had a display of Acido acid-proof boots for dyehouses and tanneries. Robert J. Barker, Gordon Hall, Arthur Pratt and A. F. Taylor were in attendance.

AMERICAN MOISTENING CO., Boston, exhibited a conditioning room that formed the background of the exhibit and all of the apparatus displayed was decorated with aluminum paint outlined in black. All of the apparatus was shown in operation. The portable conditioning room demonstrated its method of operation and the automatic control of any desired "condition" or "regain." It was arranged for skein yarn, cop or bobbin filling and cones. This conditioning room and the tangentially clustered atomizers used for humidifying small spaces were two of the new things shown. Another novel feature was the aerophor dampener for cloth conditioning in finishing works. Also publicly shown for the first time was the foolproof case in which the company's automatic control is now set up. Several types of humidifiers manufactured by this concern were shown. The exhibit was in charge of Treasurer Frank B. Comins, and he was assisted during the week by E. W. Comfort, E. D. Hague, R. C. Ulbrich and T. S. Goodnow. John Hill, the Southern Representative, was also in attendance.

WHITIN MACHINE WORKS, Whitinsville, Mass., exhibited some of the machinery required for the reclamation of cotton waste. In the reclamation of waste there are two principal systems in common use among European and American mills, the coiler system and the condenser system. Both of these systems were shown in the Whitin exhibit, the machines being in operation producing yarns. The exhibit of the coiler system showed the following machines: One 40-inch revolving flat card, with breast, fancy roll and eight-coiler front; one 9 x 4½ x 7-inch slubber with 72 spindles; one ring spinning frame of four-inch space, equipped with 36 tape-driven spindles, and one twisting frame of 3½-inch space, equipped with 36 tape-driven spindles. The condenser system included one 48-inch breaker full-roller card with automatic feed; one 48-inch finisher full-roller card with 96-end tape condenser; these two cards connected together by a cross feed, comprised a two-card set; one wool spinning frame (Pease patent), with 48 spindles, four-inch space; one waste spinning frame (Smith patent) with 48 spindles, four-inch space. Edwin H. Rooney had charge of the exhibit, and he was assisted by a large number of the Whitin selling force. G. M. Whitin visited the exhibit during the week, as did Stuart W. Cramer, southern agent for the company.

THE STAFFORD CO., Readville, Mass., showed an exhibit designed to give a comprehensive idea of the company's complete line of automatic weaving machinery. The exhibit consisted of eleven "Ideal" automatic looms, each weaving a different fabric, some on cop and others on bobbin filling. One loom was running both cop bobbin filling in the same magazine to demonstrate the fact that these looms handle cop filling as readily as bobbin. The looms shown were as follows: bag loom making 32-inch bags, 64 by 68, 24s warp and 42s filling. This looms was equipped with the new Stafford bag motion and was weaving complete bags. A terry towel loom was weaving a very handsome terry towel with the improved terry motion; a duck loom exhibited was the latest model of Stafford duck loom and was making a 12-ounce fabric; The denim loom was making a blue denim, 64 by 38, 9s warp and 12s filling. A 40-inch sheeting loom was making sheeting 80 by 80, 28s warp, 44s filling. A fine goods loom, 32 inches wide was making a piece of goods 64 by 64, 40s combed warp and 40s filling. A 62-inch worsted loom was making worsted dress goods and equipped with the latest improved Stafford positive dobby. A broad sheeting loom was making a 90-inch sheeting. A 36-inch towel loom was making a cotton towel, equipped with a double-cylinder dobby for weaving the border. A very handsome piece of corduroy was being made on another loom while a 40-inch loom was making a fine lawn of 60s warp and 70s filling, 72 by 72. Treasurer George P. Erhard was in personal charge of the exhibit, and was assisted by Sales Manager W. W. Smith, F. A. Wilde, S. S. Jackson, R. N. Mackay, A. Hutchins and D. L. Mackay.

THE UNIVERSAL WINDING COMPANY, Boston, Mass., in order to make a showing of its machines in their varied application to all classes of textiles, secured an entire section and had on exhibition thirteen distinct types of machines in operation. Several of their standard machines, which are well-known in the market, were exhibited with various improvements and special attachments, and in addition to these there were special machines which had never before been shown, and which mark a decided advance in the art of winding. The new "Progressive" machine designed for doubling fine yarn for twisting is a radical departure from established lines and promises to be one of the most important advances made by this company which has introduced many new and improved winding machines to the textile field. In the "Progressive" machine, by means of a special mechanism, the speed of the thread guide is gradually retarded as the package increases in diameter, thus building a compact and uniform package similar to the "Universal," and containing approximately the same quantity of yarn for a given size of package. A gradual reduction in the speed of the yarn guide prevents the slipping and rolling of the yarn at the end of the traverse so common in the ordinary drum machines. These elements in combination enable the machine to be run at a much higher speed than is possible where the speed relation of the drive roll and the guide is constant. Another machine which illustrated a new and novel method of winding was a machine for the winding of magnet coils. Other machines attracting much attention for their novelty and utility were the No. 8 machine, winding eleven ends of cotton yarn in multiple form to be used on twisting machines for yarn for the construction of automobile tire fabric. A recent adaptation of the No. 10 silk quilling machine for ribbon quills with mechanism for tapering the ends of the quills in winding was shown in operation, as was also a new grouping of the No. 50 cone winder into what is called a "double-gang form" of twelve spindles in place of six. Three gangs of the No. 90 machine were shown adapted for various purposes, one of these being operated continuously on fine spun silk wound in cop form for use in loom shuttles. Another was adapted to the winding of artificial silk on large bobbins for use by the knit goods industry. The exhibition as a whole was extremely creditable and shows that the Universal Winding Company is approaching the goal which it set for itself in adopting the name "Universal," as it now has a range of machines adapted to practically all the requirements for winding in the textile industry, and which are being distributed throughout the world wherever textile machinery is operated by power. In attendance at the exhibition were General Manager Frederick H. Bishop, E. A. Warren, Charles W. Peirce, Francis H. Bishop, Sidney F. Owens, F. Jackson, E. A. Broadbent and F. D. Babcock.

THE MASON MACHINE WORKS, Taunton, Mass., exhibited a new model of revolving flat card which, while it contained no radical departure from their well-known older type of card, embodied certain improvements which have proven to be of benefit to the operator and the work produced. The new card has been lowered, making it easier of access and operation. A new grinding method, based on well tried principles has been adopted and a front apron designed to simplify the mechanism and reduce the amount of cleaning and attention from the operator. The drawing frame exhibited was the standard Mason drawing frame. Two spinning frames were shown. One frame a warp spinning frame, spinning 40s warp yarn, was operated by a varying speed motor designed by the General Electric Company, with a view of improving the spinning conditions throughout the build of the bobbin. In addition to the gradually increasing speed from empty to full bobbin a second speed regulation operated by the same speed controlling mechanism increased the speed as the ring rail rose and decreased its speed as the ring rail descended, thus compensating for the greater tension on the yarn at bottom rail position, and taking advantage of the lesser tension on the yarn at the top rail position. Practical spinners were interested in this exhibit and the device opens a new field for better spinning conditions. The second frame was a standard filling yarn frame, operated by a motor furnished by the Allis-Chalmers Co. Where various numbers of yarn are spun calling for different spindle speeds, the geared method of driving frames where motors are used, presents fewer difficulties than any other method of obtaining the changing spindle speeds. They also showed a 16 harness leno weaving loom driven by a General Elecceric Company motor, gear driven, containing all the latest improvements in dobby weaving and construction. The exhibit was in charge of Thomas G. Cox, the agent.

HOPEDALE MANUFACTURING CO., Hopedale, Mass., had an exhibit in the space of and in connection with the MASON MACHINE WORKS. This consisted of an automatic bobbin changing loom with mechanical warp stop motion. The loom was a Mason standard loom driven by an Allis-Chalmers motor of the swinging type (specially adapted for driving looms) driving a friction pulley by meaxs of a belt. The loom proper was a Mason heavy sheeting type of loom. The battery for carrying the filling and the operating mechanism contains valuable improvements in this type of filling changing mechanism and is applicable to any make of plain loom. The warp stop motion, mechanically operated, is of the single thread drop wire type, and has been worked out in a very simple and substantial manner. The amount of changing necessary to make over existing modern looms into complete automatic looms is very slight, and this fact will interest users of plain looms. The revolving magazine was of special design easily adaptable to various makes of looms, with a special feed which always kept the bobbin in a position to be transferred. Clay Draper was in charge of this exhibit, while Jones Northrup, the inventor, was also in attendance.

CLEMSON AGRICULTURAL COLLEGE, Clemson College, S. C. The textile department of Clemson College was the only Southern textile school that exhibited and the exhibit was one of which the South and its representatives may well be proud. The textile department of this school points with pride to the fact that it has turned out three cotton mill presidents, two vice-presidents, five managers, nine superintendents, twelve overseers and a large number of competent workers. The principal reason for going to the Boston show was to indicate what a college in the South is doing for the betterment of the textile industry and to interest northern capital in improving the equipment of this school. Textile Director C. S. Doggett was in charge.

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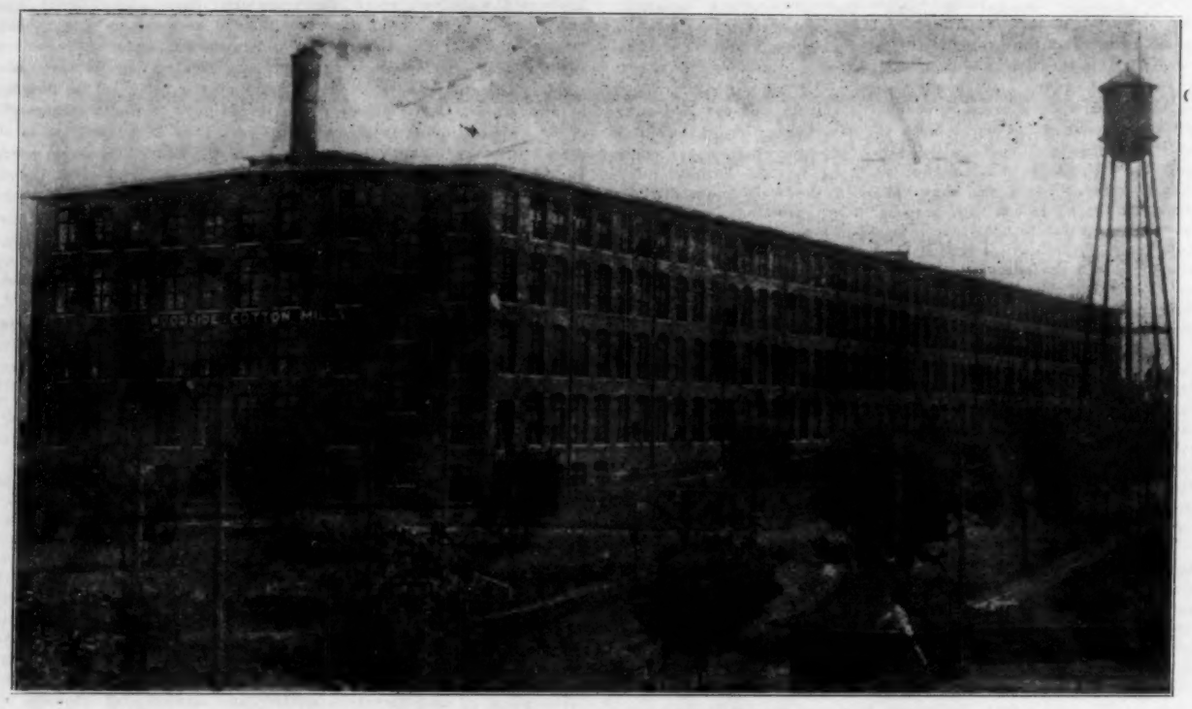

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CROMPTON & KNOWLES LOOM WORKS, Worcester, Mass. In this exhibit space the well known automatic looms of this company were picking away, making the various fabrics for which they were intended. Two types of automatic gingham looms were shown, a two color and a six color. A terry towel loom was equipped with a four-color magazine three compartments of which were used for the ground or body of the towel, while the fourth compartment was reserved for the border. A cotton blanket loom was shown in operation with a jacquard attachment, weaving a figured blanket. They also exhibited a duck loom in which the shuttle was changed automatically instead of the bobbin upon the near exhaustion of the filling and this change was made without loss of production, as no picks were lost in making the transfer. A 2 x 1 box 25 harness intermediate worsted loom was equipped with the well known Draper magazine. A 4 x 1 box 20 harness heavy worsted loom having a vertical magazine to hold four colors was also shown at work. The whole trend of this exhibit tended to show the wide range of practical work for which the automatic loom is well adapted. C. F. Hutchins was in personal charge of the exhibit, assisted by T. T. Booth, G. Thayer, F. W. Howe, C. R. Howe, and B. McGinnis. The Southern office was represented by Sidney Alexander and Edwin Garsed.

JOSEPH DIXON CRUCIBLE COMPANY, Jersey City, N. J., exhibited Dixon's famous Ticonderoga flake graphite, and a number of Dixon greases, including Dixon's waterproof graphite grease and Dixon's graphite cup greases, made in 6 degrees of hardness. Dixon's graphite tight joint compound was also shown as well as several varieties of Dixon's belt dressing. Crucibles, textile crayons, graphite brushes, Dixon's pencils and the well-known Silica-Graphite paint for the protection of various kinds of exposed steel work was also shown. G. W. Hart, Charles A. Shall and W. L. Burt were in attendance.

DRAPER COMPANY, Hopedale, Mass. The exhibit of this company, which was one of the largest shown, occupied over 2,000 square feet of floor space, the machines being placed on the outside of the space near the rail where they could be easily inspected by those passing up and down the aisle. The center of the space was fitted up as an office and reception room. The machinery exhibited was as follows: One M Model, 40-inch loom, for making fine goods. The loom was equipped with cut gears; high roll worm take up, Roper let off, double fork, feeler, single thread stop motion arranged in four banks and with light weight drop wires; roll and shaft harness motion for two shade goods. It had the Durkin thin place preventer and special Dutcher temples. One E Model, 36-inch loom with filling battery for 8¾-inch bobbin with extra large diameter; high roll take up; Roper let off; single filling fork; single thread warp stop motion; Lacey overhead harness motion arranged for four shade work. One P Model loom for 36-inch goods with filling battery for bobbins of large diameter; high roll take up; chain friction let off; single filling fork, feeler; single thread warp stop motion; overhead spring harness motion arranged for four shade weaving. One K Model loom for 36-inch goods with 7⅜-inch filling battery using cop filling. It had a high roll take up with Nutting improvement chain friction let off; Durkin preventer; single filling fork; feeler, single thread warp stop motion and 20-harness Crompton & Knowles dobby of Stafford pattern. One 96-inch L Model loom with battery for 8 inch bobbin, high roll take up, compound let off, single filling fork, single thread warp stop motion, roll and shaft harness motion and Dutcher temples. One 36-inch H Model loom, with filling battery for eight-inch bobbins, special corduroy take-up, extra heavy chain friction let off, vibrating whip roll, single filling fork, feeler, single thread stop motion, side cam harness motion for eight shades, and with nine throw for corduroy weave and a special selvage temple. One 40-inch E Model loom, with filling battery for eight-inch bobbins, high roll worm take up, cut gears, Roper let off, single filling fork, single thread warp stop motion arranged in three banks, roll and shaft harness motion for two shade weave. One 30-inch E Model loom with battery for 8-inch bobbins, steel harness, warp stop motion, high roll take up, Roper let off, single filling fork with special feeler using Straw's patent shuttle and feeler devices, steel harness warp stop motion, roll and shaft overhead work. One H Model twister, with tape driven spindles using Rhoades compensating device, one side of the machine was arranged for wet twisting, the other side for dry twisting with Rhoades Pat. novelty yarn equipment. The spindles were partly with solid whirl and part with patent centrifugal bobbin clutch; double line top and bottom rolls on the novelty yarn side; single line rolls on the wet side; guide wires and other small details suitable to go with the varying work. One L Model spooler with tape driven spindles, Rhoades patent compensating device for the spindle tapes; bobbin holders partly for standard friction and part with center drawn for fine yarn; thread guides of the improved Northrop, the MacColl and the Lawrence patterns; two sizes of each; side boxes on one side of the machine and shelves on the other. One G Model warper and balling machine with lease comb and leasing motion; high reed, and stop motion with drop wires in two banks. G Model balling machine complete with clock on floor stand with register; also sample ball of yarn to show the high quality of the ball made by this machine. One F Model warper for very fine yarns with cone motion; beam doffing device, beam with heads 18 inches in diameter, and 12-inch barrel, both the heads and the beam barrel being made very light; standard warper clock, ball bearings on the rolls, and construction throughout to give the best results with fine yarns. One I Model warper for coarse yarns with cone motion and beam doffing device, back reed and front comb; warper clock; beam with 32-inch head and 9-inch barrel. This warper will take beams with larger heads than anything else on the market, and is the best machine for coarse work where it is important to obtain the greatest possible length of yarn on a beam consistent with handling the beam in various machines. One Moscrop patent single thread yarn testing machine with springs for testing various numbers of yarn from 15's to 90's. In addition, the exhibit included samples of the Morrill slasher comb; the Rhoades patent double dent slasher comb; and samples of various spinning and twister rings; spindles with and without centrifugal clutch; also Draper spindles with the Rabbeth spring cushion bearing; samples of the several spooler thread guides; Duckworth patent traveler boxes; Northrop loom shuttles and bobbins of several standard commercial patterns; also cop spindles for Northrop looms, etc. Representatives of the company in attendance at the exhibit were F. J. Dutcher, president; W. I. Stimpson, agent C. E. Nutting, general superintendent; J. D. Cloudman, southern agent; F. E. Forster and Wm. Haynes, also of the southern office.

THE EASTON & BURNHAM MACHINE CO., Pawtucket, R. I., This company exhibited a skein winder showing its adaptability to different kinds of work. They also showed a measuring device and a number of different types of spindles electrically driven. Col. Fred Easton was in attendance a large part of the week.

EMERSON LABORATORY, 145 Chestnut St., Springfield, Mass. This company, which operates the most completely equipped analytical laboratory of its kind in New England, was represented by a booth at this exhibition. It is a well known fact that there are hundreds of ways in which an up-to-date laboratory can be profitable to the manufacturer and the Emerson service being as complete and thorough as it would be possible to obtain from a private laboratory located in the manufacturer's own plant, it is a boon to those companies who do not feel that they can afford to go to the very considerable expense of equipping a laboratory of their own and supplying a competent chemist to take charge. This is where the Emerson service steps in and increases quality and quantity of product, and efficiency in manufacturing methods.

T. C. ENTWISTLE CO., Lowell, Mass. This exhibit showed one of the Entwistle standard slasher warpers complete with creel, in operation. This machine was a model of simplicity and efficiency. The creel was equipped with a porcelain step or bearing. They also showed a balling machine, a traverse grinder for grinding cylinders and doffers, and a roll grinder for grinding the revolving flats on cards.

GENERAL ELECTRIC COMPANY, Schenectady, N. Y. At this exhibit was shown four frame drive motors, picker motors, and loom motors in operation with instruments to show their starting characteristics. Cloth gears and pinions were shown in operation, as well as all sizes and styles of Mazda lamps and Holophane reflectors, suitable for textile mill lighting. While this exhibit was supposed to represent the company's output, the actual exhibit of the company was extended practically over the entire show, as nearly 100 motors of their make were operating other exhibits. The variable speed motor which was shown for the first time two years ago, has undergone marked improvement. An interesting application of this motor was shown in the company's exhibit attached to a plain loom. By the turning of a switch the rate of picking on this loom could be changed from 130 to 180 picks per minute. Another innovation shown on this loom was an electric smash preventor, which operated automatically. Sidney B. Paine, manager of the company's mill power department, was in personal charge of the exhibit, accompanied by a large corp of assistants.

JOHN HETHERINGTON & SONS, LTD., S. C. LOWE, Selling Agent, 178 Devonshire St., Boston, Mass. In this exhibit was shown a Nasmith comber, equipped with an aspirator and the Hetherington waste lattice. It also had a double coiler head, one can receiving the combed and the other the waste sliver. This was one of several machines on the way to the Hamilton Mfg. Co., at Lowell, Mass., and the machine was being operated practically under mill conditions using Hamilton Company laps. It was operating on 700 grain laps of 1 1-16-inch staple. A quick traverse cross winding machine was also shown. S. C. Lowe was in personal charge of the exhibit, assisted by H. Harrison and J. Higginson.

THE G. M. PARKS COMPANY, Fitchburg, Mass. In this exhibit was shown several installations of turbo-humidifiers including the new turbo cluster tanks, especially designed to meet the needs of small installations. The rail surrounding the booth of this company was formed of various sizes of steam pipe as an indication that this company considers piping an important branch of their business. A great deal of engineering work in connection with piping for power and heating being handled by them. They also called attention to the combined heating and sprinkler system which they are now prepared to install as licensees under the basic patents. In attendance at this exhibit were F. W. Parks, R. S. Parks, H. M. Parks, A. W. Thompson, B. S. Cottrell, and others.

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SACO-LOWELL SHOPS, Boston. While it was impossible to include but a few specimens of the large line of cotton machinery manufactured by this company in the exhibit, there was shown most of the latest improved machinery of their manufacture, together with many attachments which have recently been applied to some of their machines. To illustrate their line of waste reclaiming machinery was shown the breaker card with apron delivery for waste and a lap winder. The real exhibit of their waste handling machinery was held at their Newton Upper Falls plant which was visited by manufacturers during the week. They also showed a late model warper equipped with an expansion comb; an improved drawing frame equipped with a measuring clock; revolving clearer combs and back lifting rolls; a new tape driven ring spinning frame; a tape driven spooler; a beam twister and camless winder. The ring frame, spooler and twister were all equipped with automatic self locking doors at the gear end fitted with glass so that the arrangement and operation of the gearing could be plainly seen. The Saco-Lowell exhibit was planned and under the supervision of James Strang. The following representatives of the firm were also in attendance during the week: E. E. Blake, Supt., Biddeford and Lowell plant; C. A. Wakefield; H. G. Lord; Fred Havey; A. Green; and W. Broadfoot. Southern Agent Rogers W. Davis divided his time between the exhibit at Boston and at the Newton Upper Falls plant. General Manager Hale, Vice-President Howe and Treasurer Snelling were also present during the week. The demonstration of waste handling machinery at the Newton plant was conducted by Charles Mills, Consulting Engineer for the company, assisted by O. E. Netter, Superintendent, and Fred Banfield, Assistant Superintendent and John Whittier, Superintendent of the Kitson shop.

THE SACO-LOWELL EXHIBIT AT THE TEXTILE SHOW.

THE WOONSOCKET MACHINE & PRESS COMPANY, Woonsocket, R. I., showed their latest style jack frame fitted with a new chain drive and ball bearing top rolls, which they claim to be the lightest running frame in the world. This frame which carried 200 spindles was driven with one-half inch belt. Also a drawing frame of patented steel construction, and the Campbell aspirators for cards. L. W. Campbell, General Manager, was in attendance. Also J. H. Mayes and W. Lee, of the Southern office. This company also made a separate exhibit of their new McBride card for carding cotton, waste, shoddy, and short staple wools. They showed the finisher and condenser card equipped with Bates feed. This exhibit was in charge of C. E. Rogers.

FALES & JENKS MACHINE CO., Pawtucket, R. I. This exhibit of spinning and twisting machinery showed a 224-spindle 2¾ inch gage spinning frame, operating on 60's single cotton yarn. The spindles of this machine were tape driven. The machine was also equipped with a steel creel and steel guide boards and top clearer. Another machine exhibited was a 48-spindle 5½ gage, 4½-inch ring,, double roll twister, equipped with tape drive and direct connected motor. Robert Jenks was in charge, assisted by several members of his staff.

U. S. BOBBIN & SHUTTLE CO., Providence, R. I. Until this exhibit was examined very few mill men ever appreciated the wide range of bobbins, shuttles and spools this company is called upon to manufacture for mills of all classes and various sections. This varied product was displayed attractively in this exhibit in glass cases and on tables where ample explanation of their uses was given by accommodating attendants. The following representatives of this company were in attendance: George H. Wilson, Treasurer; D. R. Crawford; H. D. Arnold; E. F. Nye; W. R. Sherman; and G. E. Holmes.

THE J. B. FORD CO., Wyandotte, Mich. In this booth was a complete exhibit of fabrics of cotton, wool and silk in various colors and qualities for displaying the results obtained from the use of Wyandotte textile soda and concentrated ash in bringing out colors. The exhibit was in charge of F. S. Clebart, whose smiling face is so well known to mill men all over the country.

THE POTTER & JOHNSON MACHINE CO., Pawtucket, R. I., exhibited one of their waste mixing attachments as described in the new machinery department of the May issue of COTTON. A style No. 21 double hopper feed with improved feeding aprons and single beater breaker. Also one of their standard 40-inch patented revolving flat cards with dial setting to 1000ths of an inch. This card is equipped with a doffer comb belt drive which it is stated offers great advantages. Mr. Chase, of this company, was in charge of this exhibit.

DUNN FLYER COMPANY, 60 India St., Boston, Mass. This company came in too late to get a regular exhibit space, but their well-known and genial representative, Fay Martin, had a desk at the end of one of the passageways in the main hall and was exhibiting samples of the Dunn Flyer and practical illustrations of its working advantages.

THE AMERICAN TOOL & MACHINE CO., Boston. This company exhibited a full line of Weston hydro extractors of their manufacture in 20-26-36-42 and 54 inch sizes. Also a line of centrifugal oil separators. They had a small machine in operation drying out cones for the Franklin Process Co., after they had been dyed. Also a full line of power transmission equipment and American steel pulleys. E. J. Eichler was in charge, assisted by a representative of the American Steel Pulley Co.

THE LOWELL TEXTILE SCHOOL and the NEW BEDFORD TEXTILE SCHOOL each had an excellent exhibit well worthy of description, but limited space forbids.